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THORACIC AND LUMBOSACRAL CORD INJURIES

A STUDY OF FORTY CASES

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Injuries to the thoracic and lumbosacral cord have not been granted the study that their importance justifies. If, for example, it had been generally recognized that the mortality of this group of injuries as compared with that of cervical cord injuries is roughly as 6 is to 4½ and that it is this class that includes all the surviving patients with transected cords with their attendant invalidism and problems of rehabilitation, greater attention would have been paid these injuries not only by neurosurgeons but by general and orthopedic surgeons as well. Grinker [1] in his textbook of neurology devotes only ten pages to the entire discussion of injuries to the spinal column and cord and states that (p. 182) "treatment of cord injuries is extremely hopeless." Frazier and Allen [2] note that severe injuries to the thoracic spine predicate the application of tremendous violence (p. 368) but do not otherwise differentiate thoracic and lumbosacral cord injuries from those above and below. Homans [3] does not devote more than seven pages to all injuries of the spinal cord. He does make a detailed distinction, however, between injuries in the cervical and in the thoracolumbar regions (p. 715 et seq.). In 1940 Elsberg, writing in Brock,[4] devotes only forty-eight pages to all cord injuries, of which one is devoted to thoracolumbar injuries, and in 1941 in his own book he [5] makes no such distinction and covers the whole subject in forty pages.

Any discussion about any level of spinal cord injuries should always be based on two fundamental concepts. These are (1) that spinal cord injuries are entirely different from spinal column injuries without cord involvement and (2) that any significant spinal cord injury is always accompanied by spinal shock and its effects. The first of these two concepts is self explanatory but almost always ignored. One has only to refer to the literature to discover that many authors draw conclusions as to the diagnosis, treatment and prognosis of a neurologic injury from a mixed series of both cord and vertebral column injuries. This failure to distinguish between strictly orthopedic and strictly neurosurgical matters has, among other things, held back the understanding and treatment of pressure and bed sores. When a spinal cord injury is present, any associated bone injury is secondary and of relatively little importance. Under such circumstances diagnosis, therapy and prognosis are all primarily problems of the cord injury, and the bone damage is subordinate from every point of view. Only when there is a back injury in which the spinal cord has been undamaged do the bony structures and any changes in them properly assume first place in the consideration of the case. Until this is generally recognized and acted on, but little improvement can be expected in the functional end results of spinal cord injuries.

This report deals only with injuries to that part of the spinal cord which is enclosed within the confines of the twelve thoracic vertebrae. It thus includes the thoracolumbar and sacral portions of the cord and the conus medullaris as well as the twelve thoracic vertebrae. Neither the cervical cord nor the cauda equina is included except in an occasional case in which this involvement was secondary and traceable to either a spread upward of hematomyelia or to the injury of multiple vertebrae in the dorsolumbar spine. There are 40 patients in the series. Seventeen have survived and been followed to an end result in 13 instances for varying periods from seven months to nine and one-half years. Twenty-three patients died—a case mortality of 57.5 per cent. Autopsies were obtained and the spinal cords studied in 11 instances, or about one half of the deaths.

SPINAL SHOCK

Spinal shock is a constant accompaniment of all significant spinal cord injuries. It is recognized by its effects and is known to occur at once after the infliction of the injury and to last for periods varying from a few hours to months. It has nothing to do with surgical shock. As the result of its presence all reflex activity below the level of the injury becomes chaotic, unpredictably variable and devoid of any diagnostic or prognostic significance. It probably also has a like effect on other motor activity in the same area, although this is less certain. The reflexes involved include not only the somatic variety, such as the knee jerk, but also the less easily elicited and often forgotten splanchnic reflexes. The latter control the activity of the bladder and bowel and the response to local pressure on the part of the blood vessels in the skin. The deleterious effect of spinal shock is greatest on those reflexes mediated by the spinal segments immediately below the level of injury and decreases proportionately as lower segments are reached. Thus in cervical and upper thoracic injuries a minimal effect is produced. As the location of the injury descends, however, bladder difficulties and

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1. Grinker, R. R.: Neurology, Baltimore, Charles C Thomas, Publisher, 1934.
2. Frazier, C. H., and Allen, A. R.: Surgery of the Spine and Spinal Cord, New York, D. Appleton & Co., 1918.
3. Homans, John: A Textbook of Surgery, Springfield, Ill., Charles C Thomas, Publisher, 1931.
4. Brock, Samuel: Injuries of the Skull, Brain and Spinal Cord, Baltimore, Williams & Wilkins Company, 1940.
5. Elsberg, C. A.: Surgical Diseases of the Spinal Cord, New York, Paul B. Hoeber, Inc., 1941.

bed sores, for example, become increasingly common because of the closer approximation of the segments controlling these reflexes to the level of injury.

NATURE OF THE ACCIDENT

The commonest accident leading to injury in this series was a fall from a height. This occurred 21 times, or in about one half of the cases. The height varied from five stories to 10 feet. One fall was suicidal and in 2 the patient was thrown off a roof and an electric light pole respectively by the shock following contact with live wires. Sixteen of these patients died. Automobile accidents were the next most common. There were also 4 gunshot wounds, 2 of them fatal; 2 patients were crushed; 2 were dragged, 1 beneath an automobile and 1 beneath a train; 1 was stabbed with an ice pick, and there was no certain proof of the presence or absence of an accident in the 2 other cases. The last 2 and the 2 patients who were crushed survived, whereas the patient with a stab wound and the 2 who were dragged died.

THE BONY INJURY

Although of less importance than the cord injury, it is more convenient to deal with the bony injury first. In 3 cases there was no demonstrable bony injury. The cord damages in these instances were a single intramyelogenous hemorrhage, compression from local calcification and degeneration of the ligamentum flavum and transection from a stab wound. There were 4 bullet wounds. X-ray examination was not carried out in these and 1 other case. Of the 32 other patients with demonstrated bone injury 10 had a dislocation associated with the fracture or fractures.

Fig. 1.—Anterior (*A*), lateral (*B*) and posterior (*C*) dislocations of the vertebrae. The distribution of the upper level of spinal cord injury in 40 cases of thoracolumbar cord injuries.

It may be worth while at this point to call attention to the fact that a true posterior dislocation has actually occurred only once in my series of 216 spinal cord injuries. It has been diagnosed more often but, except for this one occasion, always wrongly. Figure 1 emphasizes the difference between the anterior and the true posterior dislocation and depicts the only arrangement of the bones that justifies the diagnosis of a posterior dislocation. This is not without its importance. In at least 2 of my cases an incorrect diagnosis of posterior dislocation made by the x-ray department has led inexperienced surgeons to attempt reduction by flexion despite the fact that, at most, it is indicated only as a preliminary to extension in cervical injuries. Augmentation of the cord injury occurred in 1 case, and the production of cord damage when it had not been present before the attempted "reduction" followed in the other. Sixteen patients in this series had fractures of more than one vertebra—usually two but occasionally three adjacent ones. If the thoracic column is divided into three parts (table 1) it is apparent that the first four vertebrae were fractured in 5 instances and that there was only 1 case in which an associated dislocation occurred. The fifth, sixth, seventh and eighth vertebrae were fractured 10 times with 3 dislocations, and the last four vertebrae were fractured 15 times with 6 dislocations.

TABLE 1.—*Distribution of the Bone Injury in Forty Cases of Thoracolumbar Cord Injuries*

Thoracic Vertebral Injury							
			Bone Injury			Dislocation	
	Thoracic Vertebrae	Corresponding Cord Segments	Lived	Died	Total	Lived	Died	Total
Upper third	1st	1st thoracic through 4th thoracic	..	..	5	..	..	1
	2d		..	..		..	..	
	3d		..	1		..	1	
	4th		3	1		..	..	
Middle third	5th	6th thoracic through 10th thoracic	1	4	10	1	1	2
	6th		..	2		..	..	
	7th		..	1		..	..	
	8th		2	..		1	..	
Lower third	9th	11th thoracic through the conus	1	3	15	..	..	6
	10th		1	2		1	1	
	11th		..	3		..	2	
	12th		4	1		1	1	
Cervical			1	..	1	..	..	0
No x-ray			..	1	1	..	1	1
No demonstrable bone injury			..	..	..	..	..	4
Bullet wound			..	..	..	..	..	2
Stab wound			..	..	..	..	..	1

In 1 other case there is certain evidence of an upper thoracic transection, but the bone injury as far as x-ray evidence is concerned is restricted to the sixth and seventh cervical vertebrae. The lumbar spine could not be shown to be damaged in any of these cases. From this series it would appear that the lower thoracic vertebrae were more liable to fracture than the upper and that the lower the fracture the more probable is the presence of an associated dislocation.

TABLE 2.—*Distribution of the Upper Level of Spinal Cord Injury in Forty Cases of Thoracolumbar Cord Injuries*

Thoracic and Lumbosacral Cord and Conus Injuries					
	Thoracic Cord Segments	Corresponding Thoracic Vertebrae	Living	Dead	Total
Upper third	1st	1st through 4th	..	1	1
	2d		1	..	1
	3d		..	1	1
	4th		6	1	7
	5th		1	3	4
Middle third	6th	5th through 8th	..	2	2
	7th		..	1	1
	8th		..	1	1
	9th		5	6	6
	10th		1	2	3
Lower third	11th	9th through 12th	..	2	2
	12th		..	1	1
	1st lumbar		3	1	4
	2d sacral		1	..	1
	Conus		1	1	2
Totals			14	23	37
Questionable			3	0	3
Grand total			17	23	40

PATHOLOGY OF CORD INJURY

Nineteen of the 40 patients had transections of their spinal cords. Seven of these recovered. This is in striking contrast to the cervical injuries, in which there were only 13 transections with 1 recovery out of 100 cases seen during the same period of time. The findings were verified at operation or autopsy or both in every case except 5, and in these 5 the clinical manifestations

were typical. One of the patients whose injury was verified by all three methods had two transections. He had been transported 15 miles in the back seat of a touring car after falling from a roof. There were 5 contusions of the cord, 3 of which were verified, and 5 compressions all verified by either operation or

Fig. 2.—Patient recumbent with upper thoracic transection and paraplegia in flexion and adduction with a mass reflex.

autopsy or both. In 1 of these the compressing agent was an extradural clot. Six patients had hematomyelia and 2 edema. These diagnoses were impossible of verification except by their clinical course. In 2 cases the injury could not be certainly determined and 1 had subarachnoidal hemorrhage. The compression in 1 case was caused by the calcified ligamentum flavum previously mentioned.

The uppermost level of the cord injury is of some interest (table 2). All 12 thoracic, 1 lumbar and 1 sacral segment as well as the conus were represented in the series. If these 15 levels are divided into thirds and the living and dead patients plotted separately, it appears that of 14 patients with lesions involving the first five segments 8 survived and 6 died. So also with the last five levels (that is the eleventh and twelfth thoracic, the first lumbar, the second sacral and the conus); 5 of 10 patients survived. In contradistinction to this, when the injury involves the middle thoracic segments (that is the sixth through the tenth thoracic) 12 of 13 patients died. This suggests that injuries to the middle segments of the thoracic and lumbosacral cord are more often fatal than to the regions above and below this area. It is probable on this evidence that although the bony injury is most severe at the level of the four lower thoracic vertebrae the cord injury is not only most severe but is most often fatal in the region of the middle thoracic vertebrae.

DIAGNOSIS

I am convinced that the best one can do in making a diagnosis at or close to the time of the receipt of a cord injury is to determine the upper level of the damage by a sensory examination. Otherwise the physician is limited to a decision as to whether the injury is of the type that does or does not cause a block of the cerebrospinal fluid. The bone damage also can only be approximated. The lesions that cause a block of the flow of cerebrospinal fluid are edema with or without hematomyelia, contusion, compression and concussion of the cord. The compression may be caused by a meningeal clot, a fragment of fractured bone, crushing of the body or dislocation of a vertebra. Concussion is associated only with bullet wounds of the bony wall of the canal. Lesions that do not cause a block of the flow of cerebrospinal fluid are hematomyelia without edema, anatomic transection and rarely an overlapping tear in the dura and arachnoid with an undetermined amount of cord injury. This last permits cerebrospinal fluid to be diverted to the extradural or subdural space during lumbar puncture and thus prevents filling of the subarachnoid space below the point of injury. Such findings may lead to the diagnosis of cerebrospinal fluid block when none is actually present. Conditions that do not produce block may be present as a complication of any of those which do cause a block and, of course, be unrecognizable, but the reverse is never true. Final differentiation between individual pathologic entities within these two classifications has to await the final outcome of the case and may not be possible for months or even years. Even then it may be impossible unless major sepsis is not present, the patient is not suffering from hypoproteinemia, the bladder has reached a satisfactory functional end point and proper physical therapy and splinting have been practiced.

Diagnostic and prognostic conclusions based on the onset, type and extent of motor or reflex disability are never justified. Even observations made of the exposed cord at operation are not necessarily accurate or dependable. This is particularly true when the cord looks as though it had sustained little or no damage as far as its surface goes. Because the vascular supply to the cord is minimal and so constructed as to produce a bottleneck [6] in both the arterial and the venous channels, its tissue is particularly vulnerable should damage to the arteries or venous thrombosis occur. Cells that would not have sustained lethal damage in any other tissues will not recover, and a spreading myelomalacia may develop in the presence of damage to a single artery or of thrombosis of a single vein at certain critical levels

Fig. 3.—Same patient as in figure 2, showing him seated.

on account of the lack of collateral circulation. A detailed study of the cases in this series has demonstrated that in 20 the immediate and final diagnoses agreed and in 15 they did not agree. Agreement and disagreement could not be determined in 5. The agree-

6. Suh, T. H., and Alexander, Leo: The Vascular System of the Human Spinal Cord, Arch. Neurol. & Psychiat. 41: 659-677 (April) 1939. Herren, R. Y., and Alexander, Leo: Sulcal and Intrinsic Blood Vessels of the Human Spinal Cord, ibid. 41: 678-687 (April) 1939.

ments occurred in 8 cases of transection, 4 of compression, 1 of contusion, 1 of edema, 5 of hematomyelia and 1 of subarachnoid hemorrhage. The disagreements were as follows: 6 contusions, 5 compressions and 2 concussions proved to be transections; 1 compression turned out to be a contusion and 1 case of hematomyelia

Fig. 4.—Patient with upper thoracic transection, ambulatory with the aid of braces and crutches. *A*, upright, *B*, seated.

to be thrombotic myelomalacia. The immediate diagnoses in 22 of these instances were made after visualization of the cord at operation and the final diagnoses either by study of the cord at autopsy or after adequate follow-up. The metamorphoses occurred because of the progressive degeneration that took place in the cord after the diagnosis was first made.

I have already noted that diagnostic and prognostic conclusions based on the onset, type and extent of motor and reflex disability are never justified. I believe that recognition of this fact is extremely important. It comes about because of the changes wrought by spinal shock. Twenty of these cases could be studied in detail from this point of view. The development of motor paralysis below the level of the injury and immediately following the accident in relation to the first diagnosis was as follows: There were 8 cases of immediate transection in which the onset of paralysis followed the injury at once and 1 in which it was delayed. All patients had a mass reflex and no return of voluntary motion at their discharge. One had a completely transected cord and a torn dura at operation. There were 6 cases first diagnosed as contusion of the cord in which the injury was followed at once by complete paralysis and 1 in which paralysis was delayed. The diagnosis was made at operation in every case. In 3, free macerated cord tissue was found floating in the cerebrospinal fluid. In 2 other cases the cord was described as being swollen and not pulsating. Improvement in the paralysis did not occur in any of these cases. There were 12 cases in which a first diagnosis was compression of the cord, the diagnosis being made at operation in every case except 2. All patients had immediate complete paralysis; nevertheless 1 patient is well and free from symptoms nine and one-half years later. There was 1 patient with edema and 3 with hematomyelia who were paralyzed at once after the injury and 3 in whom the onset of paralysis was delayed, all of whom either completely or largely recovered before discharge. Finally there were 2 patients with concussion, 1 of whom has had no improvement in eight and one-half years. The other is still in the ward. The patient with subarachnoid hemorrhage had little paralysis at any time. There were 2 others in whom the time of onset of paralysis was uncertain. Thus 4 patients with an immediate onset of paralysis completely recovered, and in 11 others the end result was more serious than the original diagnosis suggested. Certainly the occurrence of motor paralysis, which develops at once after receipt of injury and is supposed to be a pathognomonic symptom of transection of the spinal cord, cannot reasonably be considered to be such a symptom when it is known to be wrong in one direction 11 per cent and in the other 29 per cent of the time.

The demonstration of the presence or absence of a block of the flow of cerebrospinal fluid is made by a study of the total protein content of the fluid below the block and the performance of a fractional Queckenstedt test. Evidence of block by increase in total protein will frequently appear before and will always outlast the evidence of dynamic block. The fractional Queckenstedt test is best done by compressing the jugular veins, not by hand but by inflation and deflation of a blood pressure apparatus cuff wrapped around the patient's neck. Observations on the intracranial pressure are made and recorded with every increase of 10 mm. of pressure in the cuff from 0 to 40 and similarly with every 10 mm. decrease from 40 to 0. Partial dynamic blocks are recognizable by this method when every other method fails. As has been pointed out, if a block is present the patient is suffering from either edema with or without hematomyelia, contusion, compression or concussion of the cord. If a block is absent the patient is suffering from either hematomyelia without edema or an anatomic transection. The only source of diagnostic error lies in the rare possibility of the patient having coincident tears in his dura and arachnoid and presenting signs that superficially appear to indicate a

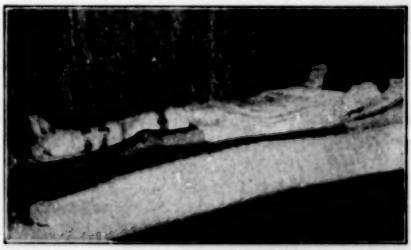

Fig. 5.—Same patient as shown in figure 2 after operative abolition of the motor component of the mass reflex, showing him recumbent.

block when there is actually none present. Further diagnostic differentiation is unjustified and impossible until the pathologic condition has reached an end point.

TREATMENT

Certain general principles of treatment must be adhered to if the end results that the patient has a right to expect are to be obtained. Every patient with a spinal cord injury should have his bladder emptied and

an inlying catheter fastened in place at the earliest possible moment. It is impossible to do this too soon. As soon afterward as it can be done this catheter should be attached to a tidal drainage apparatus properly adjusted by cystometry to the needs of the individual bladder. Simultaneously with this the patient should

Fig. 6.—Same patient as shown in figure 5, only in a wheel chair.

be treated for surgical shock if and when it is present. Both should precede all but the most superficial diagnostic measures. The demonstration of the presence or absence of a block should always follow this procedure and come before all other measures. Splints, no matter what their material, that are fixed in relation to the patient must never be used in spinal cord injuries and especially in the thoracic and lumbosacral injuries. In particular the application of plaster of paris is contraindicated regardless of the amount of padding used. So too are rubber and other rings or doughnuts, Bradford or other frames and water or air mattresses. Metal frames for hyperextension or any methods which aim to accomplish rapid hyperextension are also contraindicated. Sufficient protein must be given to these patients in their diet or by transfusions or other means to maintain their serum protein at 6.0 or better. Their salt intake must usually be increased also, and they should be started at once on large amounts of all the vitamins. While the patient remains on tidal drainage his fluid intake should never be allowed to fall below 4,000 cc. in twenty-four hours for an adult. Care must be taken to keep the bowels open and prevent the development of fecal impactions. All patients must be moved off their back and onto one or the other side every two hours, day and night, during their stay in bed. They should never be allowed to lie in a wet bed for even as little time as fifteen minutes. These are all general measures that apply to all patients with spinal cord injuries until such time as they have reached anatomic and functional end results, regardless of the diagnosis. Other procedures will depend on the presence or absence of a positive Queckenstedt test. This must be determined in every case without exception and should be carried out after the patient is out of surgical shock and on tidal drainage.

If there is no block there is no need for operation, and x-ray examinations can and should be postponed for four to six weeks. The patient should be placed on a sponge rubber mattress on top of a hair mattress and bed boards, with the bed made up in the usual manner, his feet supported at right angles and with the bed clothes held off of them by a cradle, and his knees held on pillows in slight flexion. If necessary, the spine should be hyperextended by the method to be described later. Physical therapy can be started if the patient's muscles are not hypertonic. If they are, it is harmful and contraindicated. At the end of eight weeks, if there is adequate bone repair as evidenced by x-ray examination, he may be got out of bed if he wears a steel Taylor back brace. By this time those patients who have had a hematomyelia should be about to regain or have actually regained normal control of the bladder and bowel. They should be fitted for and provided with the necessary splints to make them ambulatory and to provide them with a maximum of functional activity. A constant x-ray check should be made of their bone injury until such time as the physician is certain that it is completely healed and capable of bearing the body weight without the aid of a splint. If the bone condition regresses, the patient may have to be put back to bed or rarely fitted with a plaster or castex jacket.

Patients in this group who have a transection will prove the most difficult to handle. The same principles apply but the details of application are more time consuming and difficult of control. A defeatist attitude on the part of everybody concerned must be avoided at all costs. Nothing less than an active self-supporting wheel chair life is to be considered for a moment as an end result, and ambulatory activity with the aid of splints should be the eventual goal if at all possible. Time must not be allowed to be a factor, and the physician, the patient and his relatives should all constantly be striving toward that end. It is these patients who make up the bulk of those with thoracic and lumbosacral cord injuries. It is they who are most apt to develop pressure sores and, if their two hourly turning is neglected or if they are permitted to lie in a wet bed for as short a time as fifteen minutes, those pressure sores which are already present will turn into bed sores and other new pressure sores be added. As these patients

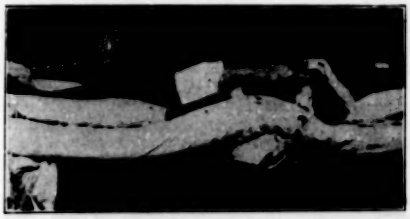

Fig. 7.—Hyperextension of the thoracic spine by means of a blanket roll beneath the mattress and on top of bed boards.

get better a mass reflex develops and paraplegia in flexion and adduction starts. To complicate the situation further, the tidal drainage apparatus becomes inefficient because of the irregular bladder responses to the abnormally spreading motor impulses of the mass reflex. Patients cannot be turned or got out of bed because of the position of their legs (fig. 2). The very

fact that they are improving neurologically leads to complications inherent in that improvement. Traction, splinting and physical therapy not only do no good but are actually harmful in such cases. Such procedures either act as sensory stimuli to the mass reflexes and set up more flexor contractions or cause pressure and

Fig. 8.—Pressure sore.

later bed sores in the extremities that are splinted. Plaster of paris is particularly pernicious in these cases.

Not all patients with transections are like this, but those who are not probably have not a complete but a partial transection. My experience would indicate that even a minimal retention of neural connections between the cord segments above and below the injury so modifies the mass reflex that paraplegia in flexion will not occur, although it does appear that such patients still have an abnormally active bladder and one that is very difficult to control. Despite that, however, patients with partial transection can be made ambulatory in many instances (fig. 4) and if not can lead active wheel chair lives, as evidenced by a patient in this series who has done so for eight and one-half years.

I am not yet sure how best to handle the late phases of the problem of patients with complete transections, particularly the bladder difficulty, which is the most important part. Certainly tidal drainage does not work, and it seems better to approach the problem by abolishing the mass reflex rather than by trying to treat the bladder. I have done this now in 4 instances. All the anterior spinal roots from the twelfth dorsal to the first sacral inclusive are cut intraspinally on both sides. Since the leg muscles become flaccid, the flexion deformities are relieved and the spread of the motor responses to minimal sensory stimuli are abolished (figs. 5 and 6). In this way the bladder is no longer stimulated by contraction of the abdominal muscles, and tidal drainage can again control the urinary outflow. Moreover, because the patients are kept dry, the skin of their backs and hips is healthier and pressure and bed sores heal. I believe that eventually it will be possible to mobilize these and other similar patients even to the point of fitting them with ambulatory splints. While still only in the experimental stage, it promises more than any previous approach.

THE QUESTION OF OPERATION

Patients on whom the Queckenstedt test is positive pose the question of whether or not this block should be relieved by a decompressive laminectomy. This is not to be undertaken lightly. My cervical cases showed a drop of 30 per cent in mortality after laminectomies were abandoned in cases in which there was a block. On the other hand, the comparison of cervical with thoracic or lumbosacral cord injuries is not quite fair because of the complicating respiratory difficulties that are inherent in the cervical cases and not present in the others. Furthermore, a block implies pressure on the surface of the cord at some point. Unless this is relieved at the earliest possible moment spinal cord damage that would not otherwise have been present will occur. Before a decision as to operability can be made, information must be obtained as to whether the block is caused by bony pressure from the outside or swelling of the cord itself. An x-ray examination is essential at this time. This should include a lateral stereoscopic view for the middle and lower and an oblique stereoscopic view for the upper thoracic vertebrae. If the canal is distorted by a dislocation or angled by a crush fracture of a vertebral body, the patient should be hyperextended (fig. 7) by having a roll of blankets placed beneath the sponge rubber and regular mattresses and on top of the bed boards opposite the kyphosis. The roll should be increased in size daily and its efficacy checked by a daily Queckenstedt test. If the block is still present

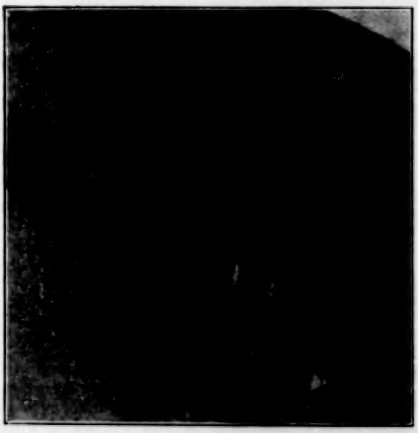

Fig. 9.—Bed sore.

at the end of four to seven days a decompressive laminectomy should be done. I have found that this method is highly efficient in cases of block caused by bony compression and practically eliminates the need for operation in all but the lateral dislocations. These have had to be operated on. If there is no dislocation or kyphos visible by x-ray examination to account for the

block, dehydration and moderate hyperextension should be tried for three to five days. If this therapy has been unsuccessful in relieving the block in that time, and provided there are no complications such as a hemopneumothorax, laminectomy should be performed. No attempt should be made at operation to reduce any

Fig. 10.—Healing bed sore.

dislocation that may be present and as little as possible should be done beyond opening the dura, removing loose fragments of bone and being certain that the flow of cerebrospinal fluid past the point of block is unimpeded. The cord should never be incised except in the rare instances of a single intramyelogenous clot. If other hemorrhages or one of the cysts that follow concussion are found and have to be dealt with or emptied, this may be done by puncturing the area with a hypodermic needle and evacuating it with the aid of a syringe. The dura should be left open and the rest of the wound closed in layers without drainage. Bullet wounds, whether causing a compound fracture with cord laceration or concussion of the cord by passage of the bullet through some part of the bony wall of the canal without contact with it or the meninges, should all be debrided as soon as the patient's general condition and complications permit. With the block relieved, the care of the cord injury and the patient is the same as that outlined in the absence of a block.

COMPLICATIONS

One of the first and most important complications of injuries to the thoracic spine is the presence of a hemopneumothorax. I am not aware that it has been mentioned previously as such in the literature, and I know that I have overlooked it myself in the past. Its presence causes much respiratory embarrassment, especially when the patient is shifted from back to side and may produce a mediastinal shift. On physical examination it causes signs that are usually interpreted as pneumonia, and a correct diagnosis is often impossible except with the aid of a thoracentesis. I have now made such a procedure routine whenever pneumonia is diagnosed and whenever there is respiratory embarrassment, fractures of the ribs or a major dislocation of the vertebrae present in thoracic and lumbosacral cord injuries. When found, the removal of the pleural fluid will often prove life saving. Six to ten daily thoracenteses will usually be necessary to return the pleural cavity to normal. If the bullet wounds are excluded, this condition was proved to be present in 6 of the 38 patients in this series, or 16.5 per cent. I have reason to believe that others were missed in the earlier patients.

PRESSURE AND BED SORES

Pressure and bed sores occur in a high percentage of patients with thoracic and lumbosacral cord injuries. It is almost impossible to avoid pressure sores (fig. 8) while the patient is bedridden. The unforgivable sin is either to allow the pressure sores to go on to the point of becoming bed sores (fig. 9) or to fail to heal either or both by the time the patient is out of bed. I have described the points of differentiation, treatment and usual sites of occurrence of these complications in an earlier paper.[7] I will only repeat the conclusions drawn then and confirmed by further experience. Pressure sores always antedate bed sores. The former develop because of prolonged weight bearing on bony prominences and of maceration of the horny layers of the skin. The latter follow because of interference with the skin-vascular reflexes. The best treatment of bed sores is prevention. This is accomplished (fig. 10) by keeping the patient constantly dry, turning him every two hours as long as he is bedridden, maintaining his serum protein at 6.0 or above and his blood chlorides at a normal level and refraining from doing any surgery to the sore and dressing it only once a day and only with a dry sterile dressing.

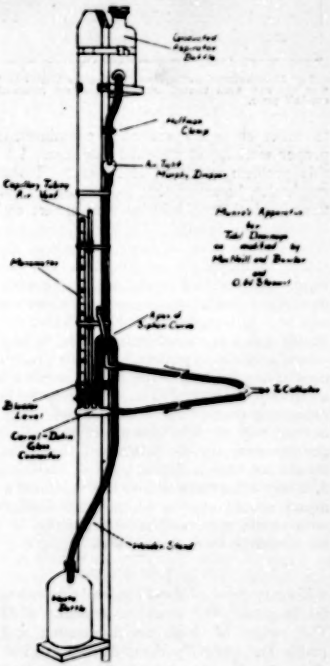

Fig. 11.—The tidal drainage apparatus with a built-in cystometer.

7. Munro, Donald: Care of the Back Following Spinal Cord Injuries: A Consideration of Bed Sores, New England J. Med. 222: 391-398 (Sept. 12) 1940.

THE BLADDER

Successful care of the bladder can be carried out only by the proper use of tidal drainage. The apparatus (fig. 11) has been greatly simplified and is now constructed in such a way as to include a built-in cystometer. There is, therefore, no excuse for a failure

Fig. 12.—Genitourinary system removed post mortem from 2 patients who had each been treated with tidal drainage constantly for one and one-half years.

to make enough cystometric examinations to assure proper working of the tidal drainage. I have covered this problem in detail elsewhere.[8] I should like to emphasize, however, that today patients who have sustained spinal cord injuries may expect certain genitourinary end results. Failure to provide these end results is traceable in every case not to the injury but rather to the physician who has been caring for the injury. These end results are as follows: 1. With a destructive lesion of the sacral segments the outcome will be a useless, hypertrophied bladder that leaks constantly and that cannot be controlled by any mechanical means available at present. 2. With a transection of the cord at any level the result will be a reflex bladder with a capacity of 150 to 250 cc. which empties only when its capacity is reached and not otherwise. If tidal drainage is used only at night and an inlying catheter is consequently necessary, the patient will have a bacteriuria but should not have a clinical pyelitis, ureteritis or cystitis. 3. Every other patient who has sustained a spinal cord injury should have a normal genitourinary apparatus with sterile urine and normal function at the time of his discharge from the hospital.

END RESULTS

Twenty-three of the 40 patients in this series died in the hospital. This is a case mortality of 57.5 per cent. The causes of death are interesting and significant (table 3). Only 2 patients died of surgical shock—one after seven hours and the other at the end of three days. One died from multiple injuries at the end of four days and 2 of circulatory failure after eight and nineteen days respectively. These 5 patients (22 per cent) were the only ones who died because of the immediate direct result of the trauma. This figure should be compared with the 40 out of 46 (82.5 per cent) similar cervical deaths. There were 2 patients who certainly and 1 who probably died from hypoproteinemia, two and one-half, eleven and fifteen months after injury. These deaths would not have occurred today and were preventable.

Five patients died of intercurrent diseases: 1 at the end of two years and three months from peritonitis caused by a ruptured enterostomy wound, 2 from pulmonary emboli at the end of seven days and eleven months respectively, and 1 each from a decompensated heart and a coronary occlusion after thirteen and twenty-four days respectively.

Ten patients (43.5 per cent) died of sepsis. A comparable figure in the cervical group is 4 out of 46, or 8.7 per cent. Only 2 of these 10 patients had meningitis—one because a laminectomy wound became infected and the other because a gunshot wound was not debrided in another clinic and the patient was then turned over to us to die. Four patients died from sepsis of the genitourinary tract. In 2 of these the sepsis followed instrumental perforation of the urethra and operative perforation of the bladder. The first was done with a styleted catheter and the second with a lithotrite. Both occurred because the genitourinary surgeon was without his usual guide post of pain and did not realize the limitations that this set on his freedom of movement. Another died because the tidal drainage apparatus was not operated correctly, and the last died before any of this work had been started. Today death from genitourinary sepsis would not be countenanced in my service. Regardless of other causes of death, kidney, ureters and bladders removed at autopsy should show no more than a very superficial cystitis (fig. 12). Three patients died from sepsis traceable to a bed sore and 1 from a thrombotic myelomalacia that originated in a

TABLE 3.—*Cause of Death in Spinal Cord Injuries*

	Thoracic and Lumbosacral Cord and Conus Injuries (40 Patients)			Cervical Cord Injuries (100 Patients)		
	Number	Incidence	Mortality	Number	Incidence	Mortality
Death in 24 hours	1	4%		16	35%	
1 to 7 days	2	9%	57%	18	39%	74%
7 to 14 days	6	24%		6	13%	
14 to 31 days	4	17%	69%	2	4%	39%
Over 30 days	10	43%		4	9%	
Totals	23		57.5%	46		46%
Death caused by Surgical shock	2			2		
Respiratory failure	0	22%		34	82.5%	
Multiple injuries	1			1		
Circulatory failure	2			3		
Hypoproteinemia	3			0		
Intercurrent diseases						
Peritonitis	1			0		
Pulmonary embolism	2			1		
Coronary occlusion	1	17.1%		0	4.3%	
Heart failure	1			0		
Phlebitis etc.	0			1		
Sepsis						
Meningitis	2			0		
Genitourinary tract	4	43.5%		3	8.7%	
Bed sores	3			1		
Thrombotic myelomalacia	1			0		

8. Munro, Donald: Tidal Drainage and Cystometry in the Treatment of Sepsis Associated with Spinal Cord Injuries, New England J. Med. 229:6-14 (July 1) 1943.

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femoral phlebitis which developed during treatment of a contusion of the back. Control of bed sores and the sepsis arising from them is still far from ideal and tremendously difficult to deal with. House officers and nurses cannot be made to believe that failure to move the patient on schedule, failure to change a wet bed within fifteen minutes of its having become wet and failure to maintain an adequate level of serum protein cause pressure and bed sores and prevent bed sores from healing until the patient has proved it to their satisfaction by dying. Then, having learned their lesson by bitter experience, these trained attendants are transferred to another ward or leave the hospital, and the educational process has to be repeated with another untrained group. Constant attention to these apparently trivial details is consequently imperative on the part of the visiting staff if it has any desire to lower the mortality and shorten the hospital stay of these patients.

Seventeen patients survived (table 4). All but 4 have been followed to an end point. End results have been listed as failure, satisfactory and well. The

TABLE 4.—*End Results in Living Patients with Thoracic and Lumbosacral Cord and Conus Injuries*

Follow-Up Period	Failure	Satisfactory	Well	In Hospital	Lost
Less than 6 months	..	..	..	1	1
7 months	..	..	1	..	..
8 months	..	1	..	..	..
14 months	..	1	..	1	..
16 months	..	..	..	1	..
18 months	1	..	..	..	..
2 years	1*	2-1†	..	..	..
3 years	..	1	..	..	..
4 years	..	..	1	..	..
7 years	..	..	1	..	..
7½ years	..	..	1	..	..
8½ years	..	..	1	..	..
9½ years	..	..	1	..	..
Totals	2	5	6	3	1

* Died 2 years later of genitourinary sepsis.
† Died of lobar pneumonia at the end of that time.

patients whose end results are classed as satisfactory are active and leading either a normal full or a normal wheel chair life. Those classed as well are doing this and earning their living in addition. Of the 4 patients who have not been followed, 3 are in the hospital under treatment. The other has been lost sight of but his condition was considered satisfactory at the time of his discharge at the end of five months. There were 2 failures: 1 patient died at home of genitourinary sepsis 2 years, and 1 is still bedridden at another public institution one and one-half years after their respective injuries. The condition of 5 was satisfactory. One of these died of intercurrent pneumonia at the end of two years. The others were alive three years, two years, one year and six months and eight months after discharge from the hospital. Six are well, 1 of whom is caring for a family of five eight and one-half years after discharge. She leads a wheel chair life but cooks, sews and is active socially. She is and has been during that time constantly on tidal drainage, which she cares for herself. The others are all working, seven months and four, seven, seven and one-half and nine and one-half years after injury.

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TUBERCULOSIS CASE FINDING BY GENERAL HOSPITALS

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Examination of admissions to general hospitals by routine x-ray or fluoroscopic examination of the chest has not been widely utilized as a source of tuberculosis case finding.

Our purpose in this paper is to report the results of a tuberculosis case finding demonstration at Grasslands Hospital extending over a period of eighteen months dating from July 1, 1941 to Jan. 1, 1943. The program was sponsored and financed jointly by Grasslands Hospital, the Westchester County Tuberculosis and Public Health Association, Inc., and the Westchester County Department of Health.

The study was to demonstrate the yield of tuberculosis that may be expected by routine x-ray or fluoroscopic chest examination of patients admitted to the hospital or its outpatient department who were not suspected of having pulmonary disease and would not customarily be examined in this way. All admissions to the chest services and those with known or suspected pulmonary or heart disease who would have received an x-ray or fluoroscopic examination of the chest as a usual procedure have been omitted from the study.

Of a total of 9,693 individuals admitted to the hospital or its outpatient department 7,187, or approximately 74 per cent, were included in the study. Those not included represent admissions to the chest services or those with expected heart or lung disease and a small number of whom examination was not practical. Those were recalcitrants or moribund patients and a few admissions to the psychiatric and contagious departments.

Clinic admissions were first examined by the fluoroscope and, when evidence of disease was present, roentgenograms were also taken. House admissions received routine roentgenograms of the chest on the standard 14 by 17 inch film. There were 2,471 examined by fluoroscopy and 4,716 by x-rays. The number of roentgenograms includes 263 patients referred after fluoroscopic examination.

Fluoroscopies were done by physicians of the tuberculosis and x-ray departments. X-ray films were interpreted by the roentgenologist and, when evidence of pulmonary disease exclusive of healed primary tuberculosis existed, the physician in charge of the tuberculosis division collaborated in the interpretation and classification.

Special efforts were not made to compare the accuracy of the two technics of examination, but in computing the results it was found that the number of active or questionably active in the two groups was practically identical. Results from the two technics have therefore been combined in the table, which represents the total number of examinations, age groups, sex and dynamic status of tuberculosis found.

Of those examined 80 per cent were native born and 20 per cent foreign born. Seventy-nine per cent were white and approximately 21 per cent colored.

Read before the monthly staff meeting, Grasslands Hospital, March 31, 1943.

There were 8 individuals of the yellow race. Of those examined, 3,985 were males and 3,202 were females.

With few exceptions, physical examination by members of the tuberculosis staff was done on all patients with reinfection disease while in the hospital or subsequently in the chest clinic. When this was not possible, reports were sent to the referring physicians and the health departments in the county. All reinfection tuberculosis was reported even if not considered to be active.

The apparently healed primary lesions were obvious calcifications, and no attempt was made to determine primary infection without positive evidence. Where massive calcification was present in the mediastinal and bronchopulmonary nodes, with sparse deposits of calcium or light patchy or linear fibrosis in the lung without evidence of activity, these were classified into minimal apparently healed in order that they might be reported for follow-up and contact examination. It is likely that some of these are of the primary infection type.

surveys in various sections of the country. Screening of these groups should be preceded by tuberculin testing. In addition to the tuberculosis discovered there were 23 individuals with significant nontuberculous lung or heart lesions.

In 1932 Mills and Stewart [1] examined 353 patients admitted to the Swedish Hospital in Minneapolis and found that 1.4 per cent of the total had reinfection tuberculosis. Their studies were made by first tuberculin testing and then by chest x-ray examination of the positive reactors. In 1935 F. J. Hodges [2] of the University of Michigan conducted a chest x-ray survey of 1,101 patients admitted consecutively either to the University Hospital or to its outpatient clinic during a period of fourteen days and found "significant chest disease unrecognizable by other methods and often totally unexpected on the basis of chief complaint and history" in 1.3 per cent.

In 1935 Pohle, Paul and Oatway [3] of the Wisconsin General Hospital took chest x-ray films of 1,417 patients admitted during a three month period. Patients with

Initial Patient Survey by Age, Sex and Dynamic Status of Tuberculosis Found

Age	Sex	Total Examinations	Apparently Healed				Questionable Activity				Proved Active			
			Primary	Minimal	Moderately Advanced	Far Advanced	Primary	Minimal	Moderately Advanced	Far Advanced	Primary	Minimal	Moderately Advanced	Far Advanced
0-10	♂	580	2	3	..	..	2	..	..	..	..	..	..	..
	♀	449	5	..	..	..	..	..	..	..	1	..	..	..
11-20	♂	471	1	..	..	..	..	..	..	..	..	..	..	..
	♀	538	1	3	1	..	..	..	..	..	..	..	..	..
21-30	♂	459	3	4	1	..	..	1	..	..	..	..	1	1
	♀	607	4	1	..	..	..	..	1	..	1	2	..	..
31-40	♂	518	9	16	2	..	..	..	1	..	..	3	2	..
	♀	473	13	10	1	..	..	1	..	..	..	..	..	..
41-50	♂	519	11	16	9	..	..	1	..	..	..	2	1	1
	♀	568	6	5	2	..	..	1	..	..	..	..	..	..
51-60	♂	469	10	9	2	..	..	2	..	..	..	1	3	1
	♀	547	9	11	2	..	..	..	..	..	..	..	..	..
61-70	♂	377	7	15	6	2	..	1	1	..	..	..	1	2
	♀	397	1	7	4	..	..	1	..	..	..	..	..	1
71-80	♂	266	4	10	4	..	..	..	..	..	..	..	1	..
	♀	266	..	5	1	1	..	..	..	..	..	..	..	..
81-90	♂	88	3	..	1	1	..	..	1	..	..	..	..	..
	♀	75	..	3	1	..	..	..	..	..	..	..	..	..
91-100	♂	9	..	..	1	..	..	..	..	..	..	..	..	..
	♀	2	..	..	..	..	..	..	..	..	..	..	..	..
		7,187	89	119	36	4	2	11	4	..	2	8	8	7
Subtotals			248				17				25			

Evidence of manifest tuberculosis was present in 290, or 4 per cent, and of these 201, or 2.8 per cent, showed evidence of reinfection disease; 42, or approximately 0.6 per cent of the total 7,187, were classified as active or questionably active; 3 of these were active primaries. Activity was established in 25 of the 42, or approximately 0.35 per cent of the total number examined. This group was classified after correlating the hospital or clinic record with the x-ray findings.

A breakdown of active and questionably active disease shows the larger number to be in men above 30 years of age. The ratio of males to females examined in these age groups was approximately 3:2, ratio of yield about 7:1.

We have used active and questionably active classifications to avoid the term "significant" and to mean that clinical activity was proved or could not be excluded.

As a result of the survey, 27 patients were admitted to the tuberculosis division of the hospital and admission was advised for 7 others who refused. The low yield in the younger age groups is what would be expected and has been amply demonstrated in school history, symptoms or physical signs of a pathologic condition of the chest were excluded. About 3 per cent of the total number receiving x-ray examinations of the chest had "significant" disease which was not detected clinically and 0.3 per cent of the total were found to have the active reinfection type of tuberculosis.

Plunkett and Mikol [4] in 1940 conducted chest x-ray examination of 4,853 patients admitted to general hospitals in upstate New York and found 2.6 per cent with evidence of the reinfection type of tuberculosis. Of these 1.1 per cent had "roentgenological characteristics diagnostic of clinically significant lesions."

Our interest in this demonstration is not confined solely to the yield of new cases of unrecognized tuberculosis but includes the furtherance of our tuberculosis

1. Mills, William, and Stewart, C. A.: Tuberculosis Survey in Private Hospital, Minnesota Med. **16**: 122-125 (Feb.) 1933.
2. Hodges, F. J.: Medical and Economic Advantages of Roentgenographic Chest Survey of All Hospital Administrations, Ann. Int. Med. **9**: 1639-1657 (June) 1936.
3. Pohle, E. A.; Paul, L. W., and Oatway, W. H., Jr.: Routine Roentgen Examinations of Chest of Patients Admitted to State of Wisconsin General Hospital During Three Months' Period, Radiology **26**: 480-484 (April) 1936.
4. Plunkett, R. E., and Mikol, E. X.: Unrecognized Tuberculosis in General Hospitals, Am. Rev. Tuberc. **41**: 381-387 (March) 1940.

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control program at Grasslands, which has been under way for several years. Our program started in the tuberculosis division in 1932 with routine periodic x-ray examination of employees in that division. Since that time the program has been extended, until now all general hospital employees and students in the nursing school are screened by x-ray chest examinations on entering employment and periodically thereafter. In the nursing school and among young employees in the tuberculosis division, examination is supplemented by tuberculin testing. By discovering unsuspected tuberculosis in our patient groups we can isolate infectious patients and better protect our staff.

Tuberculosis case finding has been intensified during the past few years in various groups of the population. Reports of community surveys, home relief groups, inmates of institutions, schools of various types, industrial workers and apparently healthy groups have appeared in the literature. Perhaps the most noteworthy is the present program of routine chest x-ray examination of inductees into the various branches of the armed forces, where, according to Long,[5] "the army examinations constitute the greatest case finding survey the world has ever seen."

Edwards[6] and his co-workers from 1933 to 1940 examined 388,666 individuals by x-ray in New York City, and the tuberculosis division of the New York State Department of Health has been instrumental in examining large numbers in schools, hospitals and industry and is now in the process of examining thousands of individuals in mental institutions.[7] According to press reports the Swedish National Association Against Tuberculosis[8] is planning to take chest x-ray films of all citizens of the country. The work will be done by mobile x-ray units.

Although tuberculosis case finding programs among various sections of the population have increased, the opportunity of the general hospital with its x-ray equipment has not been fully utilized. Parran[9] in a recent report outlines a tuberculosis control program for the United States Public Health Service and among other steps in the program emphasizes encouragement and assistance in the establishment of chest x-ray examination procedures in the admitting rooms of general hospitals.

Even though greater yields are reported in many other selected groups of the population, by the examination of general hospital admissions tuberculosis can be discovered in unbridled and unisolated individuals and is therefore of greater importance from the standpoint of tuberculosis control. In addition the general hospital often houses the most substantial x-ray equipment in the community and could be used for screening with a minimum of dislocation of material and personnel.

In days of wartime emergencies of all types, limited funds and personnel shortages, one may ponder the advisability of launching such a program. However, the importance of this demonstration looms before us when we consider that, based on the figures of approximately 53,000 annual admissions to general hospitals in Westchester County, in terms of our yield approximately 300 active or questionably active cases of tuberculosis would be discovered annually and in about 150 of these open disease would be expected.

We consider it sufficiently important to preserve most of the program at Grasslands and to recommend it as a profitable source of tuberculosis case finding for general hospitals.

CONCLUSIONS

1. The opportunity offered by routine x-ray or fluoroscopic chest examination of adult admissions to general hospitals as a source of tuberculosis case finding has not been fully utilized.

2. A tuberculosis case finding demonstration for unsuspected pulmonary tuberculosis by the aforementioned methods has been carried on at this hospital for a period of eighteen months, dating from July 1, 1941 to Jan. 1, 1943.

3. Approximately 4 per cent of patients who would not otherwise have been detected were shown to have evidence of tuberculous infection. Of these 2.8 per cent had reinfection disease and 0.6 per cent had active or questionably active disease requiring hospitalization or close observation.

4. This group is particularly important from a public health point of view because of the ease of transmitting the disease to others.

5. By discovering previously unrecognized tuberculosis in the patients, better protection for the hospital worker is made possible through isolation and treatment of infectious cases.

5. Long, Esmond R.: Bull. Nat. Tubere. A., December 1942, p. 197.
6. Edwards, H. R.: Tuberculosis Case Finding Studies in Mass Surveys, Am. Rev. Tubere. (supp.) **41**: 3-159 (June) 1940.
7. Hospital Management, March 1943, p. 68.
8. Bull. Nat. Tubere. A., December 1942, p. 183.
9. Parran, Thomas: Tuberculosis Control Program of the U. S. Public Health Service, J. A. M. A. **121**: 520 (Feb. 13) 1943.

THE PREPARATION AND USE OF RED BLOOD CELL SUSPENSIONS IN TREATMENT OF ANEMIA

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During the past few years there has been a definite increase in the use of blood transfusion as a therapeutic measure. The improved methods and facilities for collection, preservation and administration of blood, the development of blood banks, a better understanding of the therapeutic value of and indications for blood transfusion, and the increased requirements due to military medicine are probably the factors which are responsible for this increased interest. The present war has also intensified interest in the use of human blood plasma in the treatment of shock, burns and hemorrhage. Experimental and clinical observations have established the fact that plasma is actually more valuable in the treatment of shock and burns than is whole blood. The transfusion of plasma is now, and will continue to be, of increasing importance in military medicine.

The large scale preparation of plasma from whole blood has made available great quantities of red blood cells which are usually discarded. We have attempted to utilize these red blood cells which are a by-product of our plasma bank (and which amount to about 46

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per cent of the original volume of whole blood) in the treatment of anemia.

The most important factor in any type of anemia, no matter what the cause, is a deficiency in functioning erythrocytes, and the rationale of treatment is essentially replacement therapy. Whole blood transfusions are used to supply red blood cells in severe and resistant cases of chronic anemia and to hasten the recovery period in anemia from blood loss. Although the transfusion of suspensions of red blood cells is not an entirely new therapeutic procedure, its use has not been widespread. In 1937 Castellanos [1] in Spain called attention to the advantages of an infusion of concentrated red blood cells. In 1940 MacQuaide and Mollison [2] in England described the use of erythrocytes in concentrated suspensions for the treatment of anemia, and in the next year Williams and Davie [3] presented a series of cases. In 1942 Bagdasarov [4] in Russia described the use of conserved red blood cells in the treatment of anemia. In this country it has been reported [5] that Scudder at the Presbyterian Hospital in New York has employed infusions of red blood cells and that red blood cells salvaged from the Detroit Red Cross Center have been used to supplement whole blood transfusion.[6]

Red Blood Cell Infusions in the Treatment of Anemia

Case	Diagnosis	No. of 250 Cc. Infusions Given	Before Infusion: Hb. Gm.	Before Infusion: Red Blood Cells	Two Days After Infusion: Hb. Gm.	Two Days After Infusion: Red Blood Cells	Reaction	Clinical Improvement
J. H.	Pernicious anemia	5	2.0	650,000	11.0	3,130,000	None	Very good
W. F.	Chronic myeloid leukemia	1	9.75	3,760,000	11.0	4,480,000	None	Good
F. Mc.	Chronic myeloid leukemia	2	5.75	2,100,000	7.0	2,630,000	None	Fair
P. B.	Carcinoma of stomach with esophageal obstruction (preoperative preparation)	4	5.5	2,450,000	8.3	3,863,000	None	Good
W. J. M.	Postoperative gastrectomy for duodenal ulcer with pyloric obstruction	2	8.0	2,970,000	9.5	3,360,000	None	Good
E. B.	Chronic infectious arthritis	1	10.5	3,500,000	11.5	3,900,000	None	Fair
B. C.	Bronchogenic carcinoma	2	6.0	2,270,000	8.5	2,560,000	None	Fair
R. M.	Thrombocytopenic purpura	1	5.5	1,940,000	8.0	2,710,000	Yes	None
C. A.	Chronic infectious arthritis	2	9.2	4,080,000	9.0	3,480,000	None	None
J. K.	Empyema, postoperative thoracotomy	1	8.7	3,600,000	9.3	3,630,000	None	Good
F. H.	Chronic infectious arthritis	1	10.5	4,800,000	11.8	4,000,000	None	Good
R. G.	Empyema	2	10.0	4,100,000	9.5	4,000,000	None	None
J. M.	Lung abscess	1	10.5	4,250,000	11.4	4,030,000	None	Good
E. Y.	Chronic infectious arthritis	1	10.4	3,550,000	11.5	3,820,000	None	Good
R. H.	Nephrosis	2	8.0	2,960,000	8.7	2,970,000	None	Good
R. C.	Cellulitis of hand	1	11.0	3,750,000	12.5	3,950,000	None	Good
C. S.	Peptic ulcer (preoperative preparation for gastrectomy)	3	9.0	3,300,000	11.5	4,200,000	None	Very good
F. K.	Pernicious anemia	2	4.5	1,040,000	8.7	2,820,000	None	Very good
D. S.	Carcinoma of kidney	4	3.5	1,320,000	4.0	1,380,000	None	Fair
H. W.	Duodenal ulcer (inability to regenerate blood cells above 4,000,000 with iron therapy)	2	13.0	4,600,000	15.0	4,600,000	None	Very good
W. D.	Gastric ulcer (preoperative preparation for subtotal gastrectomy)	1	13.0	3,950,000	14.0	4,630,000	None	Good
R. M.	Hemorrhage from tumor of bladder	1	Severe reaction, temp. 102 F., chill lasting 30 minutes				Yes	None
H. W.	Chronic lymphatic leukemia	2	7.0	2,100,000	7.5	2,140,000	No	Fair
E. G.	Chronic gastritis	1	9.5	2,200,000	9.5	2,500,000	None	Fair
T. M.	Arteriosclerotic heart disease	3	9.0	3,090,000	13.0	4,600,000	None	Very good
J. G.	Subtotal gastrectomy, duodenal ulcer	2	9.5	2,970,000	12.0	3,570,000	None	Very good
F. R.	Portal cirrhosis of liver	1	9.0	3,140,000	9.5	3,200,000	None	Fair
J. S.	Arteriosclerotic heart disease	1	7.0	2,480,000	9.0	2,910,000	None	Very good
B. L.	Chronic myeloid leukemia	1	4.5	2,240,000	7.5	2,410,000	None	Very good
E. C.	Duodenal ulcer with pyloric stenosis (preoperative preparation)	1	8.5	2,650,000	10.5	3,790,000	None	Very good
M. J.	Gastrointestinal malignancy (preoperative preparation)	1	8.0	4,180,000	10.0	3,550,000	None	Very good
F. H.	Bronchogenic carcinoma	1	9.5	.....	11.0	3,036,000	None	Good
C. A.	Chronic heart disease	1	7.5	2,270,000	9.5	3,200,000	None	Very good
J. H.	Convalescent lobar pneumonia	1	8.0	2,310,000	8.5	2,600,000	None	Very good
J. C.	Lead poisoning	1	9.5	3,250,000	10.0	3,280,000	None	Fair
I. H.	Peptic ulcer (posthemorrhagic)	1	10.5	3,530,000	13.0	4,350,000	None	Very good
R. W.	Hodgkin's disease	1	6.0	2,400,000	8.5	3,420,000	None	Good
W. R.	Hypertensive heart disease	1	6.5	2,200,000	9.0	3,250,000	None	Good
C. S.	Perinephric abscess	1	9.0	3,100,000	11.0	3,430,000	None	Very good
J. D.	Acute nephritis	1	7.0	2,710,000	9.5	3,150,000	None	Good
J. B.	Peptic ulcer (posthemorrhagic)	1	8.0	2,970,000	9.5	3,710,000	None	Very good
G. R.	Bronchogenic carcinoma	1	9.5	3,000,000	11.5	3,800,000	None	Fair
J. S.	Postoperative herniorrhaphy	1	11.0	3,630,000	12.0	4,320,000	None	Very good
H. E.	Chronic rheumatoid arthritis	1	10.5	3,240,000	11.5	3,940,000	None	Good
P. A.	Nutritional anemia	1	10.5	3,530,000	12.5	3,540,000	None	Very good
T. C.	Bleeding peptic ulcer	1	11.5	3,900,000	11.5	3,800,000	None	Fair
M. D.	Bleeding peptic ulcer	1	6.0	1,810,000	8.0	2,560,000	None	Good
B. J.	Acute arthritis	1	10.5	3,100,000	12.5	3,840,000	None	Very good

PREPARATION OF THE SUSPENSION

The red blood cells which remain after the plasma has been aspirated by means of a closed aseptic technic are used for the preparation of the red blood cell suspension. After the plasma is removed, the aspirating needle is plunged to the bottom of the red blood cell layer and 200 cc. of cells is drawn over by means of a vacuum into a sterile 300 cc. dispensing bottle which contains 100 cc. of 5 per cent dextrose in isotonic solution of sodium chloride. The buffy coat or gel which lies between the packed red blood cells and the supernatant plasma and which consists of white blood cells, platelets and fibrin is left behind in the bottle which was used for collecting the blood. The final suspension contains approximately 88 per cent of the red blood cells obtained from one donation of 500 cc. of whole blood. The cells are from 24 to 48 hours old when they are aspirated into the dispensing bottles. They are then stored in a refrigerator at 2 to 5 C. for a maximum period of seventy-two hours, after which time those not used are discarded. The suspension of

1. Castellanos, A.: La transfusión de glóbulos, Arch. de med. inf. **6**: 319 (July-Sept.) 1937.
2. MacQuaide, D. H. G., and Mollison, P. L.: Treatment of Anemia by Transfusion of Concentrated Suspensions of Red Cells, Brit. M. J. **2**: 535 (Oct. 26) 1940.
3. Williams, G. E. O., and Davie, T. B.: Preparation and Use of Concentrated Red Cell Suspension in Treatment of Anemia, Brit. M. J. **2**: 641 (Nov. 8) 1941.
4. Bagdasarov, A.: Blood Transfusion in U. S. S. R., Brit. M. J. **2**: 445-446 (Oct. 17) 1942.
5. Taylor, E. S.: Use of Substitutes for Blood Transfusion, New York State J. Med. **42**: 1480 (Aug. 1) 1942.
6. Red Blood Cells Salvage, Science News Letter **43**: 138 (Feb. 27) 1943.

red blood cells is typed and cross matched with the serum and cells of the recipient and is also examined for hemolysis, which, if present, is sufficient reason for discarding the suspension. An analysis of the suspension reveals averaged values as follows: a hemoglobin of 17 Gm. per hundred cubic centimeters, a red cell count of 6,180,000 and a white cell count of 2,000 per cubic millimeter.

RESULTS OF TREATMENT

In the past ten weeks more than 116 infusions of red blood cell suspensions were administered to patients with anemia at the Naval Hospital, Philadelphia. No difficulty was experienced in the administration of these red cell suspensions. A filter of the type used in the administration of whole blood was employed and the rate of flow did not exceed 10 cc. per minute. The data obtained from a careful study of 72 of these infusions in 48 patients was tabulated. A red blood cell count together with a hemoglobin determination (Haden-Hausser method) was done before the first infusion was administered and two days after the last infusion was completed. Although it is impossible to achieve mathematical precision in the hemoglobin rise per volume of red cell suspension because of the many variables involved, the average increase in hemoglobin was approximately 1 Gm. for each 300 cc. suspension of red blood cells. A questionnaire was sent to the ward with each bottle of red cell suspension to be filled out by the medical officer in charge, in order to attempt to evaluate the clinical improvement. Beneficial results were reported in all but 4 of the 48 cases. There were two pyrogenic reactions, one slight and one severe in nature. There were no reactions of the hemolytic type.

Two cases of pernicious anemia were treated, one of sufficient severity to deserve special comment:

J. H., a man known to have pernicious anemia, was admitted to the hospital on March 19, 1943 in a moribund condition. The red blood count was 650,000 per cubic millimeter and the hemoglobin 2 Gm. The diagnosis on admission was hyperchromic macrocytic anemia with combined degeneration of the lateral and posterior columns of the spinal cord. He was given five infusions of 300 cc. of red blood cell suspension over a period of ten days during which time parenteral liver therapy was withheld. The blood count was elevated to 3,130,000 per cubic millimeter and the hemoglobin to 11 Gm. per hundred cubic centimeters. The patient was then placed on liver therapy and was discharged from the hospital on April 29, 1943 with a well defined clinical improvement. In 1935 the patient had been hospitalized at this institution for eleven months with the same condition.

The accompanying table shows the results of the use of 72 infusions of red cells in the treatment of anemia in 48 patients. There is 1 case of anemia secondary to thrombocytopenic purpura and 2 cases caused by acute infections. Whole blood would have been more suitable, but since the available donors were not compatible these patients were given red cell infusions.

SUMMARY AND CONCLUSIONS

1. It has been estimated that 50 per cent of the patients requiring blood transfusions in a large hospital probably need only red blood cells; and, since large quantities of these red blood cells are now being discarded in the preparation of plasma, it is logical that they be utilized as suspensions in the treatment of anemia. In time of war, when hospital beds are not plentiful and convalescence can be hastened by the administration of these red cell infusions, their use is of great value.

2. At the Philadelphia Naval Hospital, 116 infusions of red blood cells have been administered in this series with only two reactions, an incidence of 1.72 per cent.

3. The data obtained from a careful study of 72 of these infusions in 48 patients were tabulated. The average rise in hemoglobin for each 300 cc. suspension was approximately 1 Gm. and all but 4 of the cases showed clinical improvement.

4. The results show that a waste product may be converted into an effective therapeutic agent in the treatment of anemia.

SHOULD AMERICAN MEDICINE BE SOCIALIZED?

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Perhaps the simplest as well as the most comprehensive definition of socialized medicine is that it is any organized method by which adequate diagnostic and therapeutic medical service can be made available to all of the people, regardless of their ability to pay. This article, which is based on the foregoing definition, is merely an attempt to present as fairly as possible the opposing statements gleaned from the controversial literature.

The main question facing the public and the medical profession is not Will medicine be socialized? but Will socialized medicine be extended? for in the broadest sense medicine has been partially socialized, though unorganized, since the earliest Christian era.[1]

At present in this country medical care is given under a variety of systems, i. e. (1) public services, (2) services financed through insurance under the workmen's compensation acts and voluntary schemes, (3) industrial group medical services, (4) charitable and philanthropic services and (5) private competitive medicine. The problem at present is not one of "socialization" but whether the proportion between the various types of existing services shall remain the same or shall be changed.[2] Four important trends in the distribution of medical care have been under way for some time: (1) the development of group medical practice, (2) the growth of tax supported medical care for needy and other persons, (3) the planned distribution of medical facilities and personnel and (4) the growth of health insurance.[3] The two questions that should be answered are (1) Is the present system adequate for our needs?

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1. Hospitals and dispensaries established by the early church and later by private endowments give unorganized socialized medical care to millions of the poor. Experimentation in new forms of distributing medical services has been taking place for many years throughout the United States. In 1773 Virginia provided institutional care for the insane. In 1800 the federal government built the first Marine Hospital at Norfolk, Va., to give medical service to sailors. From 1800 to 1884, as authorized Nov. 13, 1797 by the Fifth Congress, the Marine hospitals were financed through a tax of 20 cents a month, later increased to 40 cents, deducted from the wages of each seaman and collected by the Collector of Customs. This plan probably was the first of the voluntary hospital care associations which have become so numerous during the last decade. In 1802 another Marine Hospital was established at Boston, and others followed along the Atlantic Seaboard and the Mississippi and Ohio rivers; in 1890 state hospitals for tuberculosis appeared; in 1900 crippled children became patients of the state; in 1910 North Carolina and Virginia commenced the free treatment of hookworm patients; in 1921 the veterans' hospitals began to multiply; in 1921 the National Leprosarium was purchased; in 1929 federal narcotic farms were established, and in 1935 the federal and state governments provided free diagnosis and treatment for syphilis, pneumonia, cancer and malaria. During the past generation all but one of the states have passed workmen's compensation laws. For the last few years the Children's Bureau of the U. S. Department of Labor has financed state infant and maternity programs and postgraduate courses in obstetrics and pediatrics for general practitioners.

2. Sigerist, H. E.: Personal communication to the author.

3. Davis, M. M.: Medical Care and Its Distribution, Connecticut M. J. 6: 496-502 (July) 1942.

and (2) If not, will "further socialization" improve the situation?

The national health or Wagner and similar bills authorize grants in aid to states to "extend and improve medical care . . . as far as practical under the conditions in such state, especially in rural areas and among individuals suffering from severe economic distress" with "standards of medical and institutional care and of remuneration therefor prescribed by the state agency after consultation with professional advisory committees."[4] Although these bills do not require the states to adopt compulsory health insurance, it is conceivable that some of them would.

The "model bill" of the American Association for Social Security, which has been used as the basis for some proposed legislation, provides complete medical and hospital service, cash disability and maternity benefits for employees receiving less than $60 a week and for their dependents.[5] The cost is to be borne by a 6 per cent tax on pay rolls, three fourths of the money going for medical and hospital care and one fourth for the cash disability and maternity benefits, with the details of operation and payments left to local councils under state supervision.

ARGUMENTS FOR CHANGING METHODS OF DISTRIBUTING MEDICAL CARE

Affirmative.—Advances in medicine have increased both cost and benefits and intensified the need of medical care. Inability to pay for medical care leads to vast expenditures for "patent medicines" and the services of cultists. Hospital care given to those who might be served by a prepayment plan is exhausting hospital endorsements. Physicians on the average are still underpaid in comparison with the cost of medical education.

Although health conditions are better here than abroad, one third of the registrants in the first and second world wars were rejected for physical defects, many of which were remediable.

Negative.—To this the negative side replies: When fully analyzed, the survey of the Committee on the Costs of Medical Care showed that only 5 per cent of those presumed to be in need of medical care failed to obtain it.[6]

No one in need of medical care has been denied it.[7] Many surveys show that failure to secure such needed care is due primarily to failure to obtain knowledge of where service was available and refusal or neglect to obtain service and in only about 3 per cent to ability to pay.[8]

Every one who has studied the subject without prejudice admits that American medicine, American medical education and American health are better than those in countries with compulsory socialized medicine. However, it has been suggested that the American standard of living and health departments may be responsible and not the American medical service and that our health record might be even better with an extension of socialized medicine. The essential difficulty of the present situation is the uneven distribution of the costs of medical care.

VOLUNTARY HEALTH INSURANCE

Voluntary health insurance is urged by many who say "The public should be encouraged to take out hospital and health insurance policies which will provide cash benefits sufficient to pay hospital and medical bills.[9] These policies are now available through voluntary nonprofit associations and commercial companies. Citizens should also be encouraged to form their own medical cooperatives on the prepayment plan, and industries should be compelled either to establish medical services of their own or to contract for medical service with local groups of physicians.[10]

The fear that voluntary health associations will lead to compulsory health insurance is valid only if these associations are badly managed.

The opponents of voluntary plans reply "Health insurance policies may cause some persons to 'enjoy ill health' because of the financial return; they do not provide many preventive measures; minor illnesses may be neglected, and competing groups may render inadequate service in order to cut the rates and force payments to physicians to an unbearable level."

Health insurance groups are restricted to the medical personnel employed; choice of physicians and the individualism of physicians usually are lost. Many of the physicians employed by these groups probably are excellent and possibly better than those whom the members would have selected. Unless they have freedom of choice, many people do not have the confidence in their physicians which, foolish or illogical though it may seem, is a sine qua non of successful medical care.

Except indirectly by larger support to medical institutions, health insurance, either voluntary or compulsory, does not provide medical care directly for the indigent, does not provide for prolonged illness and is distributed over the low income class, which is least able to bear it.[6] Most of the group plans are not applicable to the rural population.

Voluntary plans may lead to compulsory health insurance.

COMPULSORY SICKNESS INSURANCE

If voluntary insurance is not satisfactory, it is next urged by the advocates of compulsory sickness insurance that medical service should be made a public service, financed through taxation and available to all without charge, like the public schools. Medical services must be organized in order to reach the whole population and to be efficient.[11] People with low incomes—those who most need insurance protection—do not know enough to protect themselves and should be compelled to do so.[7] Without some form of compulsion, voluntary insurance fails of its objective of distributing the cost of sickness among large classes of the population with even approximate fairness. The young and healthy will not join; the acceptance of the aged and sickly will raise the cost to a prohibitive point, but their rejection will remove protection from those most in need. Sickness insurance cannot distribute the burden of sickness among the low income classes unless it is compulsory.[12]

4. Cavers, D. F.: Public Medical Services Under Title XIII of the National Health Bill, Law and Contemporary Problems **6**: 619-627 (Autumn) 1939; Medical Legislation, Disability Insurance and Hospital Benefits, Organization Section, J. A. M. A. **120**: 296-297 (Sept. 26) 1942.

5. Reed, L. S.: Legislative Proposals for Compulsory Health Insurance, Law and Contemporary Problems **6**: 628-644 (Autumn) 1939.

6. Leland, R. G.: Is Medicine to Be Socialized? Bureau of Medical Economics, Chicago, American Medical Association.

7. Critchlow, G. R.: The Trend Toward Socialized Medicine: Compulsory Health Insurance Versus Voluntary Medical Expense Indemnity, Bull. Richmond Acad. Med. **9**: 15-20 (March) 1941.

8. Leland, R. G.: The Health of Forty Million People, Hygeia **17**: 119 (Feb.) 1939.

9. The Committee on the Costs of Medical Care: Final Report, Medical Care for the American People, University of Chicago Press, 1932.

10. Problem for Doctors, editorial, New York Times, Aug. 16, 1942.

11. Sigerist, H. E.: Medicine and Society, J. A. M. Students **8**: 235-237, 262 (Jan.) 1941.

12. Bureau of Medical Economics: A Critical Analysis of Sickness Insurance, Chicago, American Medical Association, 1938.

No country that ever enjoyed the benefits of social insurance has made the slightest move to relinquish them. Health insurance has always brought more money to the doctors. The amount of bureaucracy in compulsory health insurance depends on the physicians: if they are willing to serve on salaries there will be a minimum of red tape, but if they insist on a fee-for-service basis it will be tremendous.[13]

To these arguments it is replied that though there is a decrease in the cost to the average consumer, and medical care becomes more adequate and more accessible to larger numbers, the total cost of medical care is increased owing to the employment of numerous lay organizers and bureaucrats who control medicine and become undemocratic politicians.[14]

Morbidity and mortality are not reduced, diagnosis and treatment are mechanical and superficial, neuroses are created, overmedication is increased, the hospital load is increased, hospitals are encouraged to practice medicine, the loss of time from employment through illness is greater, malingering is increased and the quality of medical care is worse. The confidential relation between patient and physician is destroyed; the former's private affairs become a matter of public record.[15]

The employment of part or full time physicians has resulted in low salaries, heavy case loads, regimentation, reduced medical standards, little opportunity for advancement and loss of initiative and personal contact.[16] The patients also are dissatisfied under state managed medicine.[6]

Even the best systems furnish an incomplete service without hospitalization, surgery or specialties, have a tendency toward routine and slipshod medical service and omit medical care for dependents, the self employed, shopkeepers, farmers and others.[7]

ATTITUDE OF MEDICAL PROFESSION

The medical profession today is conducting more social experiments in the methods of distributing medical services than all the proponents for change have ever conducted. Out of the two hundred and fifty or more projects that are being studied or operated by county or state medical societies, it is hoped that methods may be found to supplement existing medical facilities wherever necessity demands. These experiments in the distribution of medical care have been encouraged and studied by the American Medical Association and analyses of their advantages and disadvantages have been compiled by the Bureau of Medical Economics.[17] The medical profession has opposed some of the methods of distributing medical service for the reason that experience has shown the impossibility of providing good and sufficient medical care under such arrangements. In other instances the proposals have met with medical approval as presenting the most satisfactory method thus far found to provide good medical care for the conditions or communities concerned.[8]

The platform of the American Medical Association advocates the federal supplement of state funds for the care of the sick, the amplification of medical care for the indigent, the utilization of established medical and hospital facilities in the extension of medical service to all the people with local determination of needs, local responsibility and local control of administration and the coordination of all medical and health functions of the federal government in a National Department of Health with a physician as a member of the cabinet.[18]

The American Medical Association is not opposing the low income groups in this country in their effort to secure good medical service at a cost which they can reasonably meet. It has endeavored to discover more suitable methods to assist these people to solve their medical problems. It does oppose the exploitation of the poor, and it is unalterably opposed to any scheme that would give the poor an inferior quality of medical care.[9]

Both sides believe in medical care for all the people, but the "pros" believe that the present situation is intolerable and want an immediate change by legislation, while the "antis" believe that the present method of distribution of medical care can be gradually improved by local experiments and that it is impossible to apply a single universal plan to all parts of the country for the entire population or even for the forty million underprivileged people.[9]

To proceed rashly without going through progressive stages will produce worse medical service than exists under the present system. Ill considered and hasty legislation is as likely to be harmful as beneficial. Whether a generation will be necessary for the transition or a century, as in public education, only sound experiment and experience can tell.

Any organized method by which adequate diagnostic and therapeutic medical service can be made available to all of the people, regardless of their ability to pay, should meet the following requirements:

1. The public should be educated to seek early medical care.[19] The socialization of American medicine is being and will continue to be extended. However, if the expansion proceeds too rapidly without educating the public to the need for adequate medical care and without obtaining the cooperation of the medical profession, the resulting medical service will be worse than it is now.

2. Physicians, and good physicians, are essential to any plan of medical care, and if it is to be adequate it needs the wholehearted support of the medical profession. Medical service of sorts can be obtained by regimenting physicians against their better judgment, but the cooperation of the medical profession will not be obtained unless experiments demonstrate that the contemplated change in the distribution of medical care is an improvement on the present arrangement.

3. Medical care must be provided for the indigent and his dependents. At present it is available in most areas but is sometimes difficult to find, its quality is often poor and the payment for it usually is absent. Every one agrees that the poorest third of the population needs the most medical care and gets the least. The county medical societies, health departments and public welfare agencies are increasing their efforts to solve this problem. The following methods for pro-

13. Sigerist, H. E.: A Health Program for the American People, Atlantic Monthly **163**: 794-804 (June) 1939.
14. Pick, G.: Sozialversicherung und Aerzte, 1932, p. 40. Than, A.: Ein systematische Ueberblick über die gesamte deutsche Socialversicherung, 1931, p. 8. Does Federal Subsidy Mean Federal Control, editorial, J. A. M. A. **110**: 132 (Jan. 8) 1938. Leland (footnotes 6 and 8).
15. Bureau of Medical Economics: Organized Payments for Medical Services, Chicago, American Medical Association, 1939. National Physicians' Committee for the Extension of Medical Service: Dangerously Menaced, The Medical Standards and The Health of a Nation, pamphlet, September 1942. Leland.[6] Critchlow.[7]
16. Critchlow.[7] Cavers.[4] Medical Legislation, Disability Insurance and Hospital Benefits.[5]
17. Leland (footnotes 6 and 8). A Critical Analysis of Sickness Insurance.[12] Organized Payments for Medical Services.[15]
18. The Platform of the American Medical Association, J. A. M. A. **114**: 2020 (May 18) 1940.
19. Lombard, H. L.: Education a Major Need in Adequate Medical Care, J. A. M. A. **111**: 1747-1749 (Nov. 5) 1938.

viding medical care to the indigent from local, state or federal funds should be considered: (*a*) The employment of county and city physicians is the cheapest method for the taxpayer, but the medical service often is mediocre. However, it may be the only practical solution in sparsely settled areas. The payment of larger salaries and the possibility of advancement would attract better physicians. (*b*) Medical service to the indigent on a fee-per-call basis under the control of the county medical societies, similar to the former FERA plan [20] or the present Farm Security Administration program,[21] has proved satisfactory to the patient and the physician, though it is more costly than the employment of a county physician. (*c*) Payment to group clinics and hospitals and traveling expenses for the 15 per cent of indigent patients who need specialist, diagnostic, surgical and hospital care are essential. Many counties and states are recognizing this responsibility. (*d*) Group clinics and hospitals should be provided and supported in areas which need them. (*e*) Medical care should be separated from unemployment insurance and cash sick benefits.

4. The cost must be distributed for that large section of the population who want to pay their way if they can and who are not applicants for charity but whose budget rarely includes an item for hospital or doctor and to whom severe illness is a serious emergency, often a financial tragedy.[7] Voluntary associations that provide medical, surgical and hospital care under the control of state and county medical societies are enabling a rapidly increasing number of low income persons and their dependents to obtain adequate medical care without charity or bankruptcy. As the education of the public to the need for good medical care grows, the membership in these groups will increase.

5. Medical care should be improved for every one. If free from political interference and regimentation, the medical profession will be able to continue to improve medical service. Without any compulsion from political or governmental sources, the medical profession has sought constantly to advance the standards of medical education, medical licensure, hospital and specialty practice. To a remarkable degree these objectives are being accomplished. Today curative and preventive medicine has advanced to new and higher planes of efficiency. The medical profession is constantly perfecting methods of diagnosis and treatment, there has been a striking reduction in the prevalence of certain communicable and infectious diseases, infant mortality has been greatly reduced, and in the past century life expectancy at birth has been increased from about 35 years to almost 62 years.[6]

6. Free choice of a physician should be provided, not to protect him as has been charged but because the best results in medical care are obtained when the patient has confidence in his physician.

7. General practitioner care is the greatest need, as 85 per cent of illness can be handled successfully by family physicians. Only 15 per cent of the patients need specialist diagnostic, surgical and hospital care. Economic factors and the specialty boards may decrease the present plethora of specialists.

8. The control and administration should be local in order that specific needs can be met. A plan applicable to a city with several physicians per square mile is not practical in areas with one physician per 200 square miles.[22]

9. State or federal loan funds should be available to enable rural students to study medicine. Eighty per cent of them will return to the country, where they are badly needed.[23]

10. A coordinated National Department of Health should be established with a physician as a member of the cabinet.[18]

11. An equitable system of taxes is necessary to support any extension of the socialization of American medicine.

Clinical Notes, Suggestions and New Instruments

A RENAL CONCENTRATION TEST EMPLOYING POSTERIOR PITUITARY INJECTION

MODIFIED PROCEDURE

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NEW ORLEANS

We have previously reported a renal concentration test employing posterior pituitary injection.[1] This procedure consists in the subcutaneous injection into an unprepared patient of 10 units of posterior pituitary injection (1 cc. obstetric or 0.5 cc. surgical). Specimens of urine are collected at half hourly intervals for two hours and their specific gravities determined.

The small volumes of urine resulting from this procedure require a Saxe urinopyknometer, or weighing bottle, for the estimation of the specific gravity. Such a procedure does not lend itself well to clinical practice. We have therefore modified the technic by lengthening the intervals between collections to one hour. This modification is just as satisfactory and requires only the usual small size urinometer. Cheap accurate urinometers requiring only 4 to 6 cc. of urine are available. The procedure is as follows:

1. The unpre,ared subject empties the bladder, and the specimen is saved.

2. Immediately 10 units (1 cc. of obstetric or 0.5 cc. of surgical) of posterior pituitary injection is given subcutaneously.

3. The subject receives nothing by mouth until the test has been completed.

4. Specimens are obtained at the end of the first and second hours.

5. The specific gravities of the three specimens are then taken, and the usual corrections for albumin and temperature are made, if necessary.

Table 1 shows the results of this procedure on 45 normal medical students. The test was carried out in the afternoon following the usual lunch. No restrictions on fluids or food were imposed on the subjects. The lowest maximum concentration during the test period is seen to be 1.023. This compares favorably with the results of the half hourly test [2] and reaches

20. American Medical Association Study of Medical Care, J. A. M. A. **111**: 1383-1385 (Oct. 8) 1938. Sickness Under National Health Insurance, Medical Economic Abstracts, ibid. **111**: 1475-1476 (Oct. 15) 1938. Sinai, Nathan; Hall, Marguerite F.; Hogue, V. M., and Steep, Miriam: Medical Relief in Michigan, Ann Arbor, Mich., Edwards Bros., 1938.

21. Williams, R. C.: The Medical Care Program for Farm Security Administration Borrowers, Law and Contemporary Problems **6**: 583-594 (Autumn) 1939.

22. Davison, W. C.: Opportunities in the Practice of Medicine, J. A. M. A. **115**: 160-110 (Dec. 21) 1940.

23. Hyman, W. O.: Southern Medical Colleges Must Maintain Enrolment at Least at Its Present Level, J. A. Am. M. Coll. **12**: 301-304 (Sept.) 1937; The Number and Distribution of Physicians in the Southern States as Bearing on the Policies of Southern Medical Colleges, South. M. J. **30**: 85-89 (Jan.) 1937.

1. Sodeman, W. A., and Engelhardt, H. T.: Renal Concentration Test Employing Pituitary Extract: Response of Normal Subjects, Proc. Soc. Exper. Biol. & Med. **46**: 688 (April) 1941.

2. Sodeman, W. A., and Engelhardt, H. T.: A Renal Concentration Test Employing Posterior Pituitary Extract, Am. J. M. Sc. **203**: 812 (June) 1942.

the lower limit of normal described for the Fishberg procedure.[3]

Results of the test in patients with various degrees of renal impairment and with conditions, such as essential hypertension, which lead to renal damage are shown in table 2. Here figures for patients with both compensated and decompensated kidneys are included.

COMMENT

The usual tests for urinary concentration employ periods of water restriction varying from twelve hours to three days. In this way water diuresis is inhibited and the urinary specific gravity is elevated. Posterior pituitary injection eliminates the need for these long periods of water deprivation. The antidiuretic action of these solutions apparently increases the reabsorption of water by the tubules and in this way diminishes the urinary volume. This action takes place even when large amounts of water are ingested. Since the urinary solids continue to be excreted, the specific gravity is elevated to a degree dependent on the dose or effectiveness of posterior pituitary injection, the degree of water diuresis present, tubular function and the electrolyte-nonelectrolyte pattern in the urine. We have found that 10 units of posterior pituitary injection

TABLE 1.—*Results of Test in Normal Subjects*

Subject	Specimen Before Posterior Pituitary Injection	Specimen 1 Hour After Posterior Pituitary Injection	Specimen 2 Hours After Posterior Pituitary Injection
1	1.020	1.028	1.026
2	1.026	1.036	1.028
3	1.026	1.035	1.033
4	1.027	1.033	1.026
5	1.020	1.025	1.027
6	1.030	1.041	1.035
7	1.010	1.018	1.030
8	1.021	1.030	1.030
9	1.012	1.027	1.031
10	1.019	1.031	1.024
11	1.019	1.019	1.023
12	1.024	1.025	1.024
13	1.029	1.031	1.035
14	1.019	1.027	1.022
15	1.023	1.024	1.026
16	1.022	No specimen	1.023
17	1.030	1.031	1.032
18	1.023	1.029	1.029
19	1.027	1.032	1.035
20	1.030	1.035	1.033
21	No specimen	1.027	1.027
22	1.022	1.040	1.038
23	No specimen	1.031	1.032
24	1.013	1.025	1.024
25	No specimen	1.030	1.035
26	1.016	1.027	1.022
27	1.018	1.034	1.035
28	1.018	1.018	1.027
29	1.025	1.031	1.033
30	1.021	1.025	1.024
31	1.019	1.027	1.028
32	1.023	1.031	1.031
33	1.020	1.030	1.031
34	1.014	1.026	1.025
35	1.022	1.024	1.025
36	1.021	1.025	1.030
37	1.022	1.025	1.027
38	1.012	1.024	1.026
39	1.026	1.021	1.023
40	1.020	1.026	1.030
41	1.017	1.025	1.023
42	1.020	1.028	1.029
43	1.022	1.024	1.027
44	1.018	1.023	1.023
45	1.019	1.025	1.024

has been satisfactory, even when amounts of water up to 1,600 cc. have been ingested immediately before its administration.[3] Increasing the dose has not increased the efficiency of the test in our hands. The effect of the electrolyte and nonelectrolyte pattern in the urine and the results of salt diuresis may vary the concentration of substances making up the specific gravity of the urine. We have not evaluated these effects.

3. Fishberg, A. M.: Hypertension and Nephritis, ed. 4, Philadelphia, Lea & Febiger, 1939.

Since the highest specific gravities found following the administration of posterior pituitary injection occur in a period varying from one to two hours, the collection of two hourly specimens has been found to be adequate. This procedure not only simplifies the test but gives specimens of adequate volume for the small type of urinometer.

TABLE 2.—*Results of Test in Subjects with Diseases Producing Renal Damage*

Subject	Diagnosis	Specimen Before Posterior Pituitary Injection	Specimen 1 Hour After Posterior Pituitary Injection	Specimen 2 Hours After Posterior Pituitary Injection
1	Acute glomerular nephritis	1.012	1.014	1.018
2	Acute glomerular nephritis	1.025	1.025	1.023
3	Chronic glomerular nephritis; uremia	1.008	1.010	1.009
4	Chronic glomerular nephritis	1.013	1.013	1.019
5	Chronic glomerular nephritis	1.017	1.020	1.021
6	Generalized arteriosclerosis	1.010	1.012	1.014
7	Generalized arteriosclerosis	1.019	1.023	1.020
8	Generalized arteriosclerosis	1.018	1.020	1.021
9	Generalized arteriosclerosis; arteriosclerotic heart disease	1.020	1.020	1.021
10	Generalized arteriosclerosis; arteriosclerotic heart disease	1.008	1.010	1.010
11	Arteriosclerotic heart disease; congestive heart failure	1.008	1.014	1.022
12	Arteriosclerotic heart disease; congestive heart failure	1.022	1.026	1.024
13	Essential hypertension; generalized arteriosclerosis	1.027	1.023	1.024
14	Essential hypertension	1.016	1.021	1.024
15	Essential hypertension	1.016	1.017	1.017
16	Essential hypertension	1.017	1.023	1.020
17	Essential hypertension	1.017	1.019	1.022
18	Essential hypertension	1.021	1.021	1.020
19	Uremia; malignant hypertension	1.008	1.011	1.009
20	Malignant hypertension	1.010	1.020	1.024

The concentration tests now in use give various values for the specific gravity of urine in normal subjects. Prolonged periods of water restriction may give higher values than are obtained with posterior pituitary injection. However, we have in the same subjects obtained better results with posterior pituitary injection than with water restriction up to sixteen to eighteen hours. Obviously the procedure, like other tests for renal concentration, does not give a ceiling specific gravity, but the standards set up for normal subjects are workable ones. Pasqualini and Etala[4] in a series of 18 subjects in whom the specific gravity started in a low range found, in the face of the ingestion of 1,000 cc. of water, elevation of the specific gravity to 1.025 or more. These results are similar to ours. Others[5] also have found the procedure a satisfactory one.

Since impairment of renal tubular function may be estimated by determination of an impaired concentrating ability of the kidney, the test is useful in patients with disturbances in renal tubular function. In such patients posterior pituitary injection, as well as deprivation of water, will indicate the degree of tubular damage. Under these circumstances there is a striking parallelism in the results of the tests employing water restriction and the results of that employing posterior pituitary injection.[3]

In both normal and abnormal groups the doses of posterior pituitary injection used have not produced significant changes in the blood pressure even in the presence of severe hypertension and uremia. We have not used the procedure in cases of severe oliguria, pregnancy, angina pectoris or myocardial infarction. Posterior pituitary injection administered to patients with angina pectoris has been known to precipitate attacks. However, in arteriosclerotic heart disease with congestive heart failure we have used posterior pituitary injection without the observation of any untoward symptoms. Graybiel and Glendy[6] have not found any significant cardiovascular symptoms in

4. Pasqualini, R. Q., and Etala, E.: Determinación de la capacidad de reabsorción del túbulo renal por medio de extractos de lóbulo posterior de hipófisis, Rev. Soc. argent. de biol. **16**: 161 (June) 1940.

5. Talbott, J. H.: Renal Function Tests, New England J. Med. **226**: 197 (Jan. 29) 1942. Ross, J. F.: Common Laboratory Aids to Diagnosis and Treatment, M. Clin. North America **20**: 1391 (Sept.) 1942.

6. Graybiel, Ashton, and Glendy, E. E.: Circulatory Effects Following the Intravenous Administration of Pitressin in Normal Persons and in Patients with Hypertension and Angina Pectoris, Am. Heart J. **21**: 481 (April) 1941.

patients with arteriosclerotic heart disease with angina, after slow intravenous infusion of a dilute solution of pitressin in doses adequate to produce pallor and uncomfortable abdominal cramps. Additional contraindications to the use of posterior pituitary injection include epilepsy, in which attacks may be precipitated, and hypersensitivity, which has been reported on several occasions.[7]

There are instances in which the method may be valuable when the usual concentration tests are unsatisfactory. These include congestive heart failure when water diuresis from edema fluid precludes the use of any water restriction technic. Under these circumstances we have used posterior pituitary injection, which sufficiently restricts water diuresis to give an adequate estimate of tubular function. Since the pharmacodynamic effects of posterior pituitary injection last only three to six hours, diuresis is then resumed.

In clinical practice the test has definite advantages. It may be carried out on unprepared patients at any time of day. This is particularly advantageous in office practice in which a patient coming some distance for treatment may be seen only once. Furthermore it is of value in surgical patients in whom restriction of fluids over the period of time necessary for a test by water deprivation may be inadvisable. It is particularly advantageous in edematous patients and under circumstances in which the cooperation of the patient in fluid restriction cannot be relied on.

SUMMARY

The renal concentration test employing posterior pituitary injection has been modified to adapt the procedure to clinical practice. Its satisfactory use in many normal and abnormal persons affirms its efficacy.

1430 Tulane Avenue.

ACUTE GOITER DURING THIOCYANATE THERAPY FOR HYPERTENSION

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PHILADELPHIA

The sodium and potassium salts of thiocyanic acid have been used intermittently in the treatment of hypertension since Pauli in 1903 discovered their property of lowering blood pressure. Their use, however, was rather restricted until Westphal in 1925 revived interest in the subject. Since that time many reports have appeared relating to their efficacy in the treatment of hypertension [1] and describing various side effects. One of the most remarkable of these collateral effects is the occasional acute enlargement of the thyroid which occurs in patients receiving thiocyanates. Although this phenomenon is mentioned in the course of several papers dealing with thiocyanate therapy,[2] there have been but few actual reports of such enlargement of the thyroid. We describe briefly such a case to emphasize further the possibility of this type of complication occurring during the administration of thiocyanates for hypertension.

REPORT OF CASE

An Italian woman aged 35, admitted to the hospital on March 8, 1938, complained chiefly of headache and dizziness. Hypertension had first been discovered during her fifth pregnancy, in 1932, but had not received any specific treatment. On examination the blood pressure averaged about 210/110 mm. of mercury. There was moderate sclerosis of the retinal arteries with some angiospasm. The second aortic sound was accentuated. The thyroid isthmus was barely palpable. Intravenous urography showed a normally functioning urinary tract with moderate ptosis of both kidneys. Repeated urinalyses were normal. The blood urea nitrogen was 8 mg. per hundred cubic centimeters. The urinary excretion of intravenously injected phenolsulfonphthalein was normal. The diagnostic impression was that of "benign" essential hypertension.

The oral administration of potassium thiocyanate was begun in doses of 0.3 Gm. daily on March 21, and the patient was discharged from the hospital on March 28, 1938. Thiocyanate therapy was continued in doses sufficient to maintain a blood concentration of 6 to 10.5 mg. per hundred cubic centimeters until July 1939. During this period, however, there was little subjective or objective improvement. In June 1938 the patient was referred to the Endocrine Section of the Medical Clinic because of suspected hyperthyroidism. Although the basal metabolic rate at that time was + 36 per cent and fell to + 20 per cent after nine days of iodine therapy, the patient felt no better as a result of taking the iodine. It was concluded that there was no valid evidence of hyperthyroidism; the increased basal metabolic rate was thought to be associated with her hypertension, as is often the case. However, because the thyroid isthmus was palpable a semiannual period of prophylactic iodine administration was advised. On Oct. 24, 1938 the basal metabolic rate was + 9 per cent and on Oct. 21, 1939 it was + 5 per cent. In July 1939 her blood pressure was 175/110 and the blood cyanate concentration was 10.5 mg. per hundred cubic centimeters. There was no apparent change in her condition until August 1940. At that time she noted a sense of chilliness, sluggishness, impairment of hearing, pain in the neck and swelling of the face and throat. In September 1940 she returned to the Endocrine Section for examination. At this time she exhibited general sluggishness, with puffiness of the face and a definite soft diffuse uniform enlargement of the thyroid. The thyroid gland was not tender, but lateral motion of the head caused pain in the neck. The heart rate was 76, the blood pressure 195/120, the basal metabolic rate — 11 per cent and the blood cholesterol 223 mg. per hundred cubic centimeters. The blood cyanate concentration at this time ranged from 8 to 10 mg. per hundred cubic centimeters. The patient was given 0.015 Gm. of desiccated thyroid and 0.3 cc. of saturated solution of potassium iodide daily from Sept. 1 to Nov. 25, 1940. Because the relationship between the thiocyanate therapy and the goiter was not appreciated at the time, the administration of thiocyanate was not stopped. On November 25 the basal metabolic rate was — 4 per cent and the thyroid enlargement had almost entirely disappeared, as had also the superimposed symptoms which had appeared in August. The desiccated thyroid and potassium iodide were stopped at this time, but the thiocyanate was continued under the direction of the Cardiovascular Section.

The patient returned to the Endocrine Section every six months for inspection and a ten day period of prophylactic iodide medication. There was no change in her symptoms or thyroid status until August 1942. At this time there was a recurrence of the symptoms noted two years before, i. e. puffiness of the face and neck, sluggishness, chilliness, impairment of hearing and pain in the region of the thyroid on motion of the neck. These symptoms, however, were less severe than at the time of their first appearance in 1940. Examination again showed puffiness of the face and a diffuse soft uniform swelling of the thyroid gland, which on this occasion was quite tender and slightly firmer than during the first episode. The temperature was 99.4 F. and the blood pressure was 200/110. The basal metabolic rate was — 18 per cent and the blood cholesterol was 172 mg. per hundred cubic centimeters. The blood cyanate concentration was less than 4 mg. per hundred cubic centimeters, despite the long duration of uninterrupted thiocyanate therapy and the fact that the patient was taking 0.65 Gm. of potassium thiocyanate daily at the time. A blood count and routine urinalysis showed no abnormality. The thiocyanate was stopped and the patient was again given 0.015 Gm. of desiccated thyroid and 0.3 cc. of a saturated solution of potassium iodide daily. This medication was continued from Aug. 6 to Oct. 16, 1942. On Sept. 17, 1942 the basal metabolic rate had risen to + 13 per cent, the thyroid enlargement was subsiding and the patient's symptoms were improving steadily. On Dec. 9, 1942 the basal metabolic rate was + 9 per cent, the blood cholesterol was 172 mg. per hundred cubic centimeters and the puffiness of the face and the enlargement of the thyroid had entirely disappeared. On that date the patient said that she felt better than she had for a number

7. Sodeman, W. A.: The Posterior Pituitary Gland, Am. J. M. Sc. **204**:149 (July) 1942.

From the Endocrine Section, Medical Clinic, Hospital of the University of Pennsylvania.

1. Barker, M. H.: The Blood Cyanate in the Treatment of Hypertension, J. A. M. A. **108**:762 (March 7) 1936.

2. Wald, M. H., Lindberg, H. A., and Barker, M. H.: Toxic Manifestations of Thiocyanate, J. A. M. A. **117**:1120 (March 25) 1939.

of years, despite the failure of prolonged thiocyanate therapy to produce a sustained significant fall in her blood pressure. The administration of thiocyanate was not resumed after the last episode of acute enlargement of the thyroid.

COMMENT

While there has been some speculation concerning the manner in which acute goiter is related to thiocyanate therapy, there have been but few specific cases reported in the literature. Barker [1] in 1936 referred to 3 cases that showed a peculiar myxedematous swelling of the tissue of the face, the orbital areas and the cervical region while thiocyanate was being taken. One occurred in a woman after one year and the other occurred in a woman after fifteen months of administration of thiocyanate. In the latter case a large thyroid, swollen face and heavy jowl developed. The basal metabolic rates were only slightly reduced (— 18 per cent and — 19 per cent). In 1 man a diffusely enlarged thyroid developed after ten months' administration of thiocyanate. His basal metabolic rate had fallen from + 19 to — 9 per cent. The enlarged thyroid returned to normal size on administration of desiccated thyroid. Wald, Lindberg and Barker [2] in 1939 referred to a patient who showed rapid enlargement of a previously present "adenomatous" thyroid nodule which occurred during thiocyanate administration. In reporting the results of thiocyanate therapy in a series of 246 cases in 1941 they [3] mention the occurrence of enlargement of the thyroid in 11 cases and of myxedematous facies in 9 cases. They stated that the thyroid phenomenon disappeared within two weeks in all cases after the administration of small daily doses of desiccated thyroid was begun. Fahlund [4] in 1942 described an acute tender, painful goiter (probably thyroiditis) in a woman aged 71 suffering from a ten year postoperative recurrence of hyperthyroidism, with associated essential hypertension. The goiter appeared nine days after daily administration of a 6 grain (0.4 Gm.) dose of thiocyanate was begun and was accompanied by dermatitis medicamentosa and gastrointestinal disturbance. The signs and symptoms subsided after the withdrawal of thiocyanate and the administration of phenobarbital and potassium iodide. Kobacker [5] in 1942 described a case in which full-blown myxedema appeared during thiocyanate administration, disappeared after withdrawal of the drug and reappeared when therapy was resumed a year later. Means [6] has recently referred to a curious case to be reported by Rawson, Hertz and himself. Their patient was a man under prolonged thiocyanate therapy for hypertension who suddenly developed a rapidly growing goiter with bruit, exophthalmos, hyperthyroidism and low level of iodine in the blood. Biopsy showed "wildly growing and impotent thyroid cells." The thyroid reverted to normal and the hypothyroidism disappeared after withdrawal of the thiocyanate.

A satisfactory explanation has not yet been found for the occurrence of changes in the thyroid during the administration of thiocyanates. Enlargement of the thyroid in rabbits and guinea pigs following the ingestion of winter cabbage and Brussels sprouts was described in 1928 by Chesney, Clawson and Webster [7] and later by Marine and others.[8] It was eventually shown that the goitrogenous agent in these foods was methyl cyanide. This was believed to cause sufficient anoxia of tissue cells to result in a work hypertrophy and hyperplasia of the thyroid in an effort to produce increased amounts of thyroid hormone, as required by the need to maintain oxidative processes at normal levels. These observations naturally suggest that thiocyanates may produce goiter in a similar manner. Against this theory, however, seems to stand, first, the fact that the cyanate ion (SCN) remains intact in the body without loss of the sulfur component and, second, failure of the cyanate ion to leave the intercellular tissue spaces and enter the cells themselves.[9] It is of interest that some of the toxic effects of thiocyanates as reflected in the skin and mucous membranes closely resemble those of iodides.[9] We have observed that in some hypertensive patients showing a favorable response to thiocyanates there seems to be a somewhat sedative effect with slowing of the heart rate, relief of nervous tension and sometimes coincidental loss of hair. Whenever change in thyroid function occurs during thiocyanate administration it seems to be in the direction of hypothyroidism. Most of the reported cases of goiter have developed after rather protracted periods of therapy, but the actual dosage of the drug and its concentration in the serum do not seem to bear a constant relationship to the thyroid disturbance. The prognosis for disappearance of the goiter and the hypothyroid phenomena seems to be good following the withdrawal of thiocyanates. The administration of desiccated thyroid and iodides probably facilitates recovery. It is of some interest that our patient's first attack of enlargement of the thyroid and the associated phenomena subsided after the administration of desiccated thyroid substance and iodides, despite the continued administration of thiocyanate.

3. Barker, M. H.; Lindberg, H. A., and Wald, M. H.: Experiences with Thiocyanates, J. A. M. A. **117**: 1391 (Nov. 8) 1941.
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TOXIC ERUPTION DUE TO AMPHETAMINE SULFATE AND ITS ANALOGUE DEXTROAMPHETAMINE SULFATE

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In the last decade more than half a hundred articles on the therapeutic value of amphetamine sulfate (benzedrine) have appeared in the medical literature. Within the last few months its analogue dextroamphetamine sulfate (dexedrine), which qualitatively is similar, has been introduced to the medical profession. It presumably has all the advantages of amphetamine sulfate but causes fewer undesirable vascular reactions.[1]

In spite of its increasing widespread use in medical practice, and although numerous toxic reactions have been reported,[2] a thorough review of the literature of the last ten years reveals but 1 questionable instance of dermatitis.[3]

The well known untoward cutaneous reactions of amphetamine sulfate have been reviewed by Reifenstein and Davidoff,[2] who list flushing of the face, urticaria, cutis anserina, characteristic bromidrosis, dermatographia, pustular eruption, cyanosis, xeroderma, coldness and clamminess of the hands, paresthesia and similar effects.

Goldsmith [3] presented a questionable eruption on the face of a female patient. There were a number of irregularly disposed flesh colored papules on the forehead and cheeks, some of which were excoriated. The main sensation was prickling; the rest of the skin was normal. The eruption appeared following the administration of amphetamine sulfate for narcolepsy. The rash was exacerbated by increasing doses of amphetamine sulfate and improved when it was withdrawn. Goldsmith had never seen an amphetamine rash. The original diagnosis was acne excoriée, but the paucity of scratched papules and discoloration made him consider a toxic process.

REPORT OF CASE

A. S., a white woman aged 34, consulted one of us for obesity and was put on a regimen of 1,200 calories and 1 grain (0.065 Gm.) of thyroid daily. After several weeks, amphetamine sulfate 5 mg. before breakfast and lunch was added to the program. The patient then lost approximately 2 pounds (900 Gm.) a week for six weeks. In a few days subsequent to the ingestion of amphetamine sulfate a pruritic lichenified eruption developed on the sides of the neck, axillas, cubital fossae and

9. Goodman, Louis, and Gilman, Alfred: The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941, p. 573.
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popliteal fossae. The lesions were the exact counterpart of a typical atopic dermatitis.

She was taken off amphetamine sulfate medication and in a few weeks her dermatitis cleared up entirely. Although she continued on her restricted diet and thyroid medication, she observed that she was no longer losing weight and on her own initiative resumed the amphetamine sulfate. Her rash promptly recurred and she again lost weight. When the amphetamine was again eliminated, the rash subsided except for a mild nonpruritic lichenification of the cubital fossae. She then went on a trip and discontinued her reducing regimen. When she returned several weeks later she had regained half the weight lost and she resumed her previous diet and medication. Once more her atopic dermatitis-like lesions reappeared and the amphetamine sulfate was stopped. Some six weeks later, when the cutaneous manifestations had almost vanished, the patient was put on 5 mg. of dextroamphetamine sulfate (dexedrine) before breakfast and lunch, and the dermatitis remanifested itself, as seen in the illustration, but disappeared shortly after the withdrawal of the dextroamphetamine sulfate.

Dermatitis of cubital fossa following administration of dextroamphetamine sulfate.

COMMENT

Dermatitis medicamentosa has been reported as resulting from almost every type of medication. Hence it is inevitable that a case of amphetamine sulfate dermatitis should be encountered. It is not uncommon for dermatitis medicamentosa to mimic classic dermatologic entities; thus a lichen planus-like rash may follow the administration of arsphenamine.[4] An erythema nodosum-like eruption may be produced by sulfathiazole.[5] Our patient had no personal or family history of allergy. Although emotional factors may precipitate latent atopic dermatitis in a subject with an allergic diathesis,[6] we do not think the sympathicominetic stimulation of amphetamine sulfate has evoked a dormant atopic dermatitis in this case. Patch tests and scratch tests with amphetamine sulfate elicited no reaction. Goldsmith's questionable case of amphetamine eruption[3] may have been acne vulgaris, as he thought was possible. The patient may have excoriated her acne papules in response to the stimulant action of the amphetamine sulfate on her nervous system.

SUMMARY

An atopic dermatitis eruption resulted from the ingestion of amphetamine sulfate and its analogue dextroamphetamine sulfate.

Republic Building.

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Special Articles

THE ARMY MEDICAL LIBRARY

ITS HISTORY AND ITS FUTURE OBLIGATIONS

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Librarian, Army Medical Library

THE FIRST HUNDRED YEARS

Seven years ago the Army Medical Library celebrated its one hundredth anniversary in the building into which it moved in 1887 and which it still occupies. It had been in existence ever since the Florida war; it was a feeble infant in the Mexican struggle, a mere child in the Civil War and lived at all only because John Shaw Billings put the breath of life into it about 1868, when it boasted no doubt of its five thousand volumes. It became great in the succeeding decades, but it has had its ups and downs ever since. It produced, besides Billings, Garrison and Fletcher, neither of the latter two ever to be the librarian, and it has had some fourteen military librarians who held office from a week to nine years, the longest tenure since Billings' time. Most of the librarians, I suppose, have left some impress on the institution. All have been military officers and some were brilliant men, if untrained in library technic.

In my first few years as librarian I was asked occasionally what its policy was, what the organization was, what was the great objective and so on. Apparently, as an institution the library had no definite policy beyond habit and custom, except as is contained in Public Resolution No. 8 of the Senate and House of Representatives (approved April 12, 1892). This permitted the library to place its facilities for research at the disposal of scientific investigators and qualified students of higher institutions of learning. Nevertheless, its organization was somewhat of a mystery; even its employees were mysterious. Certain people had duties and, no less, rights. If an old employee had been holding down an office like, let us say, the steward of the British Chiltern Hundreds at a nominal salary, he was not likely to tell you much about his job. Certainly the library did not always know where its next thousand dollars was coming from and it had no precisely formulated policies. Its obligations, as laid down in Army Regulations, were somewhat nebulous. Even today they are still only what the librarian and the Surgeon General safely think they should be. Do not be surprised at this. The military service can operate only from a day to day basis. At any moment military policies may demand changes affecting the entire army, and retrenchments may produce of necessity far reaching consequences. In this respect the institution has gone through any number of economy storms. It has survived an abortive attempt to take it away from the Army and place it under the Library of Congress. It has suffered disappointments and frustrations without number. For all this it has gone on its way. The Army or, rather, the Surgeon General, has carried on the operations of the Library for many decades and you may be sure that the Army itself can continue to do this to the advantage of medicine and that the Library can retain and augment its rank as a leader in the medical library field in the broadest implication. But it can do this only if it can prove its adaptability

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to the needs of a changing world and only if it shall arrive at a clear perception of future obligations. Therefore I hope to interest you, not particularly or solely in its wartime work, but in a brief review of the history of the institution, with a consideration of its wartime activities and with its future as we may be able to see it.

Now the Army Medical Library, or the Surgeon General's Library as it was once called, was founded during the administration of Andrew Jackson in 1836. It was then a small collection of medical books and pamphlets, a mere handful in the Office of the Surgeon General, Dr. Lovell, and so it remained for more than thirty years, unhonored and unsung. In 1865 John Shaw Billings came to Washington. Dr. Billings came not as librarian but as the assistant to the Surgeon General, and at first he appeared more interested in pathologic specimens and in microscopes and fungi than in the library. I have examined hundreds of letters addressed to him in Washington in the years 1868 and 1869, and in none of them could I find any refence to a library and only occasionally was a book mentioned. One of his associates used to call Billings "my dear old fungous fellow," and at that period he apparently did not look on Billings as exclusively a bibliophile. The books numbered but five thousand just before 1870, there was no *Index-Catalogue*, and the present Library and Museum, once the dream of the medical library world, was not occupied until seventeen years later.

In the Surgeon General's report the museum began to be mentioned in 1867, but the library received no mention whatever until 1870, when a brief notice of its expenditures was made. It was not until 1876 that the report contained a headed paragraph on the library, and here is described briefly the printing of the Specimen Fasciculus, a momentous event for medicine. From that time on the library's statistics began to appear, and the Surgeon General reported in 1879 that there were fifty thousand books on the shelves. In 1880 the Surgeon General recommended that a new building be constructed to cost $250,000. The building was completed in 1887.

If we exercise our imagination, it is not difficult to sketch the library of those days in the solemn eighties and the gay nineties except that we must exclude merriment from its somber walls. The Library and Museum shared the building, and the lower floor housed a section of the Adjutant General's Office. There were thousands of books; the *Index-Catalogue*, that monument to Billings' genius and industry, was appearing regularly, and other thousands of books and pamphlets were added each year. Appropriations for material were limited and difficulties in obtaining personnel were great. Most of its employees were ex-soldier clerks, a very few of whom were of scholarly pretensions. Garrison, Fletcher, Allemann and Neuman were all of this era, and Toepper came in soon after Billings departed in 1895. The library was useful to a host of scholars; men like Osler, Klebs, Kober, Kelly, Welch and Cushing visited it constantly. Gradually there grew up somewhat of an isolationist attitude which obstinately and forever took refuge in what the library possessed and in its superb *Index-Catalogue* but exhibited no overwhelming desire to know how those outside its walls did or felt. It could not be otherwise when clerks and workers in subprofessional grades gloried in their ability to do today as was done yesterday and when the building of the *Catalogue* must subordinate every other activity. Yet this is not to deny that it held a vast pride in its well earned reputation.

Dr. Billings did two notable things among his many accomplishments: he made a vision of a great index catalogue of medicine come true more than sixty years ago and he accumulated a store of medical literary treasures of the fifteenth, sixteenth, seventeenth and eighteenth centuries such as can hardly be equaled again. His ability to secure this material, now unobtainable, was beyond compare.

Billings left the library after thirty years as librarian in the closing years of the last century. The value of his services has been elaborated by abler pens than mine and I forbear to say more, for there is little that can be added. The staff was getting on in years, some were aging and most were set in their ways; to differ with them was heresy.

When Colonel Billings departed with his laurels to take his new position as the head of the public libraries of New York City, he was succeeded by Colonel Huntington, who served but a year, to be followed by Major J. C. Merrill, a distinguished naturalist and bird lover, who carried on for four years. In 1902 there came Major Walter Reed, who seems to have served actually but a week, having died in office. I can find no records which indicate that Major Reed exercised any influence on the Library itself. After Reed's melancholy and untimely death came Brig. Gen. Calvin DeWitt, who served only a year. Thus after Billings' departure in a period of eight years we find that there were five librarians, one of these serving four years and the others averaging only one year. Fortunately the staff was comfortably, not to say firmly, settled and there were always Garrison and Fletcher, brilliant men both. Garrison, so famed in the history of medicine, carried on the *Index-Catalogue* and Fletcher edited the *Index Medicus* and was justly regarded as the father of the latter publication.

The *Index Medicus*, now published by the American Medical Association here in Chicago, was begun in 1879 and except for a brief interval was carried on until 1927. In 1912 Fletcher, who had been regarded as immortal, died of old age, and Garrison became the editor. In 1903 General McCaw became librarian, remaining in this position more than nine years, until a newly adopted War Department policy which limited a tour of duty to four years forced him to leave the city of Washington. He was succeeded by Col. C. C. McCulloch, who served for five years, until the end of the World War in 1919, when the Library had two librarians in less than one year. Up to 1919 the librarians had been limited to four years or occasionally a little more, and this applied to the succeeding tours of General Noble, Colonel Phalen, Colonel Ashburn and Major Hume. As each librarian went his way there was a period of uncertainty, and the incoming librarian had to decide what new policies he would adopt or whether he would carry on like his predecessors.

In 1933, to the surprise and consternation of the Surgeon General, a proposal was actually laid before the President by petition of certain members of Congress to transfer the Army Medical Library to the Library of Congress. Fortunately the Surgeon General, aided by the opinions of many of the leaders of the medical profession, was able to prevent this, and not much weight was given to the suggestion, as the Librarian of Congress, Dr. Putnam, opposed it. Nevertheless Dr. Putnam seemed to think that the Army Medical Library had not received adequate financial support and that it was not properly staffed, and in this we can agree with him.

During the depression years following 1932 Congress in great measure withdrew its support to the library. The *Index-Catalogue* had to be suspended for three years. To add to this there was not enough money to buy all the necessary journals and many of them lapsed. During this period the librarian, Major Hume, was able to keep some of the journals going by getting the subscriptions as gifts, but this turned out to be unsatisfactory in the following years because later many of the numbers were not sent, which caused gaps to occur in the files. Some of these are still unfilled. Sometimes subscriptions were cut off without notice, which made for confusion.

In 1936 the *Index-Catalogue* was restored to life and began to be printed, but much damage had been done by the lapse of three years and many mistakes were made. Dr. Claudius F. Mayer had been chosen editor some time before and has continued in the position ever since. A change in editorship of the *Index-Catalogue* is usually a serious matter and a new editor requires a number of years before he can carry on successfully. Actually, while there have been many librarians there have been only four editors since Billings' time: Fletcher, Garrison, Allemann and Mayer.

It will be seen that the low point of the library occurred in the period of national depression between the years 1930 and 1936, and those years were disastrous. Material was lacking and personnel so insufficient that much of the indexing, analysis and cataloguing had to be left undone, and this state of affairs continued for many years, which left eventually a vast amount of work which had to be caught up with.

Some years before my time in the library it was realized that the institution was bound to be in difficulties within a few years for lack of space and lack of personnel. In 1938 a bill was introduced after many hearings to provide a new library and museum. After lively agitation and much favorable testimony the bill failed finally in the last few days of the Seventy-Fifth Congress. Long before this a place for the Army Medical Library and Museum had been selected at the Army Medical Center. Plans had been drawn which fitted the ground, but they did not seem to fit the needs of the library as a national institution. When I entered on my duties as librarian in 1936 I was asked if I could revise these plans. This I was unable to accomplish with good effect, since I believed that they were faulty and I was convinced that the location was unsatisfactory. In this belief I was supported by many of the leaders in medicine and by Dr. Putnam of the Library of Congress, who thought that it would be a mistake from the standpoint of future support and prestige to allow this national institution to be placed in the control of the commander of a military reservation far away from the center of the city.

The permanent location of the library on Capitol Hill was favored by the present Surgeon General of the Army, General Magee, as it was by his predecessor, General Reynolds. The matter was settled in 1941, when Congress passed a bill authorizing a new library and museum. It had appropriated the year before the sum of $130,000 for plans to be drawn. Blueprints and artist's drawings were made by the architects, Eggers & Higgins of New York, who spent approximately a year in developing the general plans in consultation with the librarian, the curator of the museum and an advisory board of medical officers. The District of Columbia Park Planning Commission, of which Mr. Delano was president, and the Fine Arts Commission held a number of hearings at which the plans were submitted, and a defense of the ground selected was made by the Surgeon General and myself. The entire plan was finally approved and a square of ground on Capitol Hill was selected for condemnation. Early in the fall of 1940 hearings were begun by the military committee of the House of Representatives concerning the necessary appropriation, since thus far only the enabling act had passed Congress and had been approved by the President. There seemed to be little doubt that Congress would appropriate a substantial sum for the purchase of the land and for the construction of the library, the entire amount of money recommended being about $4,500,000, of which approximately $3,750,000 was for the building. Estimates by various construction firms called for an outlay of between $3,900,000 and $4,200,000 for the building alone, leaving approximately about a half million dollars for the land, the assessed value of which was about $450,000.

On Dec. 7, 1941 came the war with Japan, and with it were dashed all hopes of the immediate erection of a building which was so badly needed. This was a crushing blow, for the library was already so crowded that there was no hope of holding out any longer. The situation then was such as to discourage any one really acquainted with the circumstances. The library had been full to bursting for two or three years and all attempts to get any more space, even temporarily, had failed. The personnel was about one half what it should have been for satisfactory prosecution of the work. The war was coming on, the demands of which could not be foreseen. There was little or no room left for accessions and none whatever for expansion of personnel. Moreover, there was such a scramble for space in the city of Washington that the library had no chance of securing anything adequate. It is not too much to say that the Army Medical Library was facing disaster then, for it could not long operate under the conditions present. In addition, the books had for some time been deteriorating, even the modern ones, and the condition of the old books to the number of more than twenty-five thousand was deplorable. An attempt had been made a year or two before this to do repair work on the incunabula, but by law this could be done only by the Government Printing Office, and there were so many difficulties that the effort came to naught. Reorganization of the library was urgently needed, but it could not be done under the conditions that were prevailing.

The beginning of 1942 was perhaps a momentous one for the library, for it marked the time when it was realized at long last that this great institution was cornered and that it must fight for its life and somehow or other get out of its difficulty. Fortunately the demands of the war made this not only possible but mandatory.

THE LIBRARY DURING THE PRESENT WAR

When the plans for the new Army Medical Library were completed, they had been made with an operational plan in mind, a plan not actually in existence although it could be imagined. The library had never been reorganized, indeed, it had never been adequately organized at all; that is, along modern lines. Its setup was the result of experience and modified by congressional and departmental limitations, tempered with the ideas of a number of librarians who succeeded one another more or less rapidly. To attempt to organize a library when one has not the means, the personnel

or the power seems far fetched, and for that reason it was done only on paper, to be put in operation when the new building was ready for occupancy.

The war, the necessity for increasing the staff to take care of wartime needs and the utter inability to function fully in the cramped quarters enabled, indeed forced, the Surgeon General and the librarian to take long needed action. This consisted in an immediate reorganization of the staff and the method of operation, and to effect this it was necessary to move a part of the library to another city, not only for safety, but for the ultimate preservation of the books which had suffered so severely by attrition and lack of proper housing.

It was decided that a simple and logical method of operation should be devised as a guide based on experience and on future objectives. First, the old manner of operation was studied in graphic form. This appeared so unsound, showing as it did overlapping activities and utter lack of responsibility devolving on those who should have exercised authority in key positions, that the need for a new setup seemed the more urgent.

We asked ourselves What did the library do, in plain and homely terms? The answer was that it searched for medical literature, it acquired and paid for it, it then indexed, catalogued and printed it, it bound the serials and it shelved or boxed the material, making it available for use through loan or otherwise. There were other things, however, that made the machine less simple than it appeared at first sight. There were the problems of administration, of conforming to War Department directives, of abiding by Civil Service rules and departmental rules, of securing funds each year from Congress, and so on. Finally, it seemed to us that the library ought to have four divisions and that all its activities must be made to fit into these divisions. The divisions were to be the Administrative, the Accession and Supply, the Index-Catalogue and the Circulation and Reference.

The Administrative Division is to be headed by a commissioned officer, the assistant to the librarian. This division handles all matters of personnel, discipline, police, fire control, mail and correspondence, liaison, orders and memorandums, staff meetings, repairs, finance, pay rolls, building and messenger service, utilities and so on. Its force is entirely clerical and fiscal and has no professionals in it. The largest subdivision is the Photoduplication Section, in reality almost an independent unit.

The next division is the Accession and Supply, and it is concerned with searching the markets of the world for medical literature. It corresponds in most of the modern languages, if this is necessary. It buys current books and journals, checks files for completion, binds journal files at the end of a year, accessions books and pamphlets, sending them to the Index-Catalogue Division as they are received. The division is also charged with binding and rebinding, which is done at the Government Printing Office in Washington or, in the case of the Cleveland branch, at Cleveland binderies under negotiated contracts.

The third is the Index-Catalogue Division. It indexes and catalogues, according to author and subject, all medical literature, portraits, broadsides, curiosa and the like coming to the library by purchase or gift. It is charged also with the production of the *Index-Catalogue*, which is published by the Government Printing Office. It does bibliographic research which is not ordinary reference work. The chief of this division is the editor of the *Index-Catalogue*.

The Division of Circulation and Reference, the last of the four, is concerned with direct service to the public. This means the jurisdiction and service of reading rooms, reference library, special collections, loans, stack and reference service and related correspondence. Its main subsections are the main reading room, the journal room, the reference library and the document section.

The entire personnel in the library is now about sixty-four, although there is a considerable turnover owing to separations for the service, or one cause and another, and it is seldom that there are that many on duty for the reason that replacement causes long delays. As a rule, persons assigned to divisions of the library are not shifted to other divisions except when there is an urgent reason.

A few years ago the total personnel in the library was only thirty, and of these only four or five had a professional rating, all the others being clerical or subprofessional, no matter what their duties happened to be. Outside of the editor of the *Index-Catalogue* and one other person engaged in indexing and checking medical literature, there was no one with a rating higher than a professional-1, which is the lowest professional grade. At the present time the employees who have a Civil Service rating have more than doubled, but the most noticeable thing is not the increase in number but the increase in the professional grade. Whereas once the professionals were but about 10 per cent of the total there are now fourteen employees with a professional rating, which is more than 20 per cent of the whole.

CLEVELAND BRANCH OF THE ARMY MEDICAL LIBRARY

The Cleveland branch of the library was established in July 1942. A considerable portion of the Allen Memorial Medical Library in Cleveland was leased for eight years, and this included unused air conditioned stack space to house fifty thousand volumes. It also included a former museum space which was cleared and turned over to the Army for conversion into library space. This will accommodate forty thousand volumes, the grand total being ninety thousand. Almost the entire Rare Book Collection of the Army Medical Library was sent by express in boxes to Cleveland to the number of about twenty thousand. This included all the incunabula, the works of the sixteenth, seventeenth and eighteenth centuries and a few other items but did not include nineteenth century works no matter how rare these happened to be. The incunabula had been kept together in the Army Medical Library as a unit only within the last four years. The sixteenth century works were scattered through the library shelves, apparently according to subjects. The editor of the *Index-Catalogue* and the librarian gathered the incunabula and the sixteenth century authors into a very nearly complete collection which was maintained on certain shelves. When the library was moved it was necessary to search the entire building for the other works of the seventeenth and eighteenth centuries, which number more than fifteen thousand. This was a tremendous task, and it was useless to attempt to collect them in any sort of order. Accordingly the titlepage of every rare book was photographed before the book was packed. Finally the entire twenty thousand odd volumes were shipped to Cleveland to be unpacked and placed in order on the shelves.

The librarian has made arrangements with a Cleveland binding firm to start the great work of repair and rehabilitation, a work which will take from three to five

years. It will require a large appropriation. No matter what the cost is, it will be worth it, for there is no such medical collection in the world and it will be possible, even now, to restore the collection and place it not only in as good condition as when the library first acquired the books but in a far better one. The work requires the attention of the best of experts, it includes matching old leather, the repair of parchment, careful cleansing, the restoration of damaged pages and the restoration of silver and leather clasps and thongs. The acquisition of the branch library in Cleveland for a period of eight years was the result of my complete and undeviating opposition to burying this collection in the ground for the duration, which was at one time suggested.

In addition to the Rare Book Collection, the Document Section of the library and a part of the Vital Statistics Section also have been removed. It is intended to keep up the service in the Cleveland library more or less in the same manner as in the Army Medical Library. The personnel in the branch library consists of an officer in charge, a curator of the rare books, two professional librarians, a chief clerk and an assistant and a messenger. Its staff is 50 per cent professional. In time, in the next few years, perhaps it will become the Mecca of those who wish to consult these rare treasures. Working space is available and every consideration will be given to those who are qualified to take advantage of their opportunity.

Naturally it will be inquired What is the principal library work which is connected definitely with the war? There is greatly increased reference work for military and naval hospitals and medical activities. Our bibliographic and reference work is increased many times. We are helping war plants and factories in this field. Greatly increased information service is being requested by military personnel in Washington.

There is a constant search being made for new medical material in journal, in book and in pamphlet form published in Latin America. The library is securing all European medical material available in film form and is cataloging it and making it available for distribution. There is a great increase in photoduplication work for overseas units, for Free China and for the United Nations. Up to the present the Army Medical Library has turned out millions of pages of this medical material and is shipping overseas more than half a million pages a month. This is in the form of journal literature, of which about seventy complete titles are copied as they appear monthly as continuing orders and in book form. More than one hundred complete textbooks have been reproduced in film and sent to fifteen medical centers in China. This requires the master film to be copied fifteen times.

The library has been active in developing simple hand viewers for microfilm and in helping to place them on the market at a low price. Thus far three types have been modeled to sell at a nominal price.

The library does not limit its services solely to the Army and Navy requests but serves the medical public in every way possible. Its loans go to every state in the Union and its photoduplication service goes all over the world, to remote places in Canada, to the naval station in the Caribbean, to Australia and to Africa. Oftentimes we do not know where it goes, for the address is only a numbered American Post Office.

The work done for the Military Information Division of the Surgeon General's Office is constantly on the increase. The library is also assisting in the preparation of the Medical History of the War.

These are but the main types of work, but the demands made on us can hardly be limited, and each week brings new questions and new problems. During all this, the production of the *Index-Catalogue* goes on regularly, and the library also places its facilities at the disposal of the "Current List of Medical Literature" issued each week by the "Friends of the Army Medical Library" and the Medical Library Association.

THE FUTURE OBLIGATIONS OF THE LIBRARY

Among the many projects outlined by the Fine Arts Commission of the District of Columbia in connection with postwar plans for the development of the city of Washington, a new Army Medical Library and Museum occupies a prominent place in the $400,000,000 program. The Fine Arts Commission has listed as its first item the development of East Capitol Street from the National Capitol eastward to Anacostia. This will result in a great central composition at least 5 miles in length. It will be excelled in this respect by no other capital city in the world. All the buildings along East Capitol Street are to be in either marble or granite similar to the Folger Shakespearean Library and, as the commission is careful to add, "the proposed Army Medical Museum and Library Building." Thus it would seem that eventually the Army Medical Library will come into its own and hope need no longer be deferred.

In order to do full justice to the new building in so prominent a location and to secure the funds for its erection, a careful estimation will be required concerning the usefulness of the library from a national standpoint, not only now but in the future. It is my belief that the library, with a closer relationship to the Library of Congress, with the retention of its freedom as a separate unit, will give us an institution deserving of the confidence it has enjoyed in the past. Lest it should be forgotten, we should remember that the Army Medical Library has a pleasant and profitable relationship with its sister institution, the Army Medical Museum, and that the fortunes of the two are closely linked and that they will march together in future years bound by common ties of mutual respect and helpfulness.

Among the many things that the library will face will be the task of distributing its enormous duplicate collection, acquired by gifts over a period of many years and now stored in hundreds of boxes, to institutions in various parts of the world which are most in need of it. The future relation of the library with the medical schools of the city of Washington must be carefully considered. Complete and satisfactory service will involve remaining open at night, as is now the practice of the Library of Congress. No doubt such a service should be given by the Army Medical Library. Again, the great collection of medieval medical literature, within a few years to be completely restored, will be returned to the parent institution under a competent curator. The standard of our personnel is rising, but it is not yet what it should be, and greater attention should be paid to the employment of scholars and to those skilled in library technic.

How shall we determine a wise course for the future, with definite commitments in the years to come, and how shall we convince the lawmakers that a definite policy as to future operation and support can be agreed on? It will be apparent that this can be determined best by putting a number of heads together, and this brings up the last thing of importance for us to consider—the survey of the Army Medical Library by one of our national foundations. This has already been

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arranged for, and it should begin within a few months, since the director and his staff have been appointed. The scope of this survey is broad. It will be a fact finding body which will submit constructive criticism with a plan for the future. It will consider the previous history of the Army Medical Library through its one hundred years of existence, the support that has been given it, its personnel, its method of operation and so on.

With the completion of this survey, it will be unnecessary in future to weigh various policies and recommendations that have been made at one time or another, many of them entirely out of date and not in keeping with modern library practice. Finally, it may be said that the vicissitudes and discouragements through which the library has passed will aid us to secure greater efficiency and a better future for this century old institution.

DIPHTHERIA MORTALITY IN LARGE CITIES OF THE UNITED STATES IN 1942

TWENTIETH ANNUAL REPORT

The procedure followed in obtaining data for this report is described in the review of typhoid mortality for these same cities.[1] Briefly, a communication was addressed to the health officer of each of the cities requesting the number of deaths from diphtheria both among residents and among nonresidents which were recorded in 1942. Inquiry was also made of the percentage of children under 5 years of age who had received a complete series of diphtheria protective treatments as of Dec. 31, 1942. Such figure if available should give an approximate indication of the percentage of children who had received such treatment before entering school for the first time. In calculating death rates the 1940 census figures were used. The practice of charging all deaths, both among residents and among nonresidents, against the individual city has been continued with the inclusion of appropriate symbols similar to those employed in previous years. Such symbols indicate those cities in which either (1) all diphtheria deaths were stated to be in nonresidents or (2) one third or more such deaths were stated to be in nonresidents. Attention is directed to tables 11 and 13, which together list forty-three cities (there were forty-five in 1941) which record no diphtheria death among residents in 1942. In addition to the thirty cities (there were twenty in 1941) with no diphtheria and typhoid deaths in 1942 (table 12), five cities (Birmingham, Dayton, Knoxville, Memphis, Utica) report no death among residents from either cause.

While most of the groups of cities report an increase in the number of deaths from diphtheria the New England cities (population 2,579,152) record the same total (eleven) for each of the two years 1941 and 1942 (table 16). This number is, however, nearly double the total for 1940 (six). The rate remains the same (0.43). Of the eleven deaths it is stated that six were among nonresidents (four of these in Providence). Nine of the New England cities (Bridgeport, Hartford, Lynn, New Bedford, New Haven, Somerville, Springfield, Waterbury, Worcester) report no death from diphtheria in 1942. All nine were on the honor roll in 1941 except Springfield. Cambridge, with one death among residents, has lost its place on the honor roll which it held for the two previous years. Lynn has extended its good record to six years, New Bedford and New Haven to five years, Somerville and Waterbury to four years, Bridgeport and Worcester to three years. Lynn also reports no death from typhoid during the past six years. New Bedford has been free of deaths from the two diseases for five years, Hartford and Somerville for two years. Boston records two diphtheria deaths for 1942, one among residents (in 1941 there were three deaths, two among residents). Fall River reports two deaths among residents; Lowell two deaths, one among residents. Six of the eight New England cities (table 10) with no diphtheria death for two or more years report that from 50 (Waterbury) to 88 (Hartford) per cent of preschool children have received their protective treatments. Lynn, with no death for six years, records 71 per cent. New Bedford and Somerville could not provide adequate data. Boston and Fall River, with two resident deaths each, report only 15 and 18 per cent treated.

The eighteen cities (population 13,129,185) in the Middle Atlantic states (table 2) continue to hold first place and seemed to have very little competition in 1942. The number of deaths has increased from twenty-two in 1941 to twenty-three in 1942 but the rate remains the same (0.17). This maintains the new all time low rate established by these cities in 1941, approximated only by the West North Central cities in that same year (0.18). Two of the twenty-three deaths in 1942 were among nonresidents. The number of deaths among residents has increased from nineteen in 1941 to twenty-one in 1942. One must conclude that the former year was the better of the two, and even this group of cities has not fully upheld its own record. Ten cities (there were ten in 1941, twelve in 1940) appear in the select list (table 11) with no diphtheria death in 1942 (Albany, Elizabeth, Erie, Newark, Paterson, Rochester, Syracuse, Trenton, Utica, Yonkers). Six were on the honor roll in 1941; Albany, Erie, Paterson and Utica have been added; Buffalo, Camden, Reading and Scranton have been dropped. It is stated that there has been no diphtheria death in Rochester for eight years, none in Elizabeth for six years, none in Yonkers for five years, none in Trenton for four years, none in Newark and

TABLE 1.—*Death Rates of Fourteen Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
New Haven	0.0	0.0	0.4*	0.79	1.6	7.1	14.3	34.9	22.7	15.6	54.8	74.5
Lynn	0.0	0.0	0.4	4.7	13.5	17.0	17.8	17.8	31.7	38.9	44.0	49.0
New Bedford	0.0	0.0	0.4	5.0	10.9	16.5	17.0	39.9	22.6	25.1	52.8	39.9
Somerville	0.0	0.0	0.5	3.3	3.7	19.7	20.8	37.5	40.5	40.2	37.5	37.4
Waterbury	0.0	0.0	1.4	2.4	2.6	17.9	23.0	19.6	....	....	....	....
Worcester	0.0	0.0	0.7†	3.3†	8.6	15.5	14.1	21.3	32.2	36.5	50.3	47.8
Bridgeport	0.0	0.0	0.8	1.9	11.8	19.6	28.4	23.5	30.8	34.2	63.9	79.3
Hartford	0.0	0.0	1.0†	3.3	11.9	13.8	25.3	28.1	28.6	47.6	100.9
Springfield	0.0	1.3	0.3*	2.1	10.3	15.4	24.9	19.1	31.3	29.6	51.3	68.2
Boston	0.3†	0.4†	0.7†	3.9†	8.3	20.2	28.3	30.0	36.2	53.7	82.9	112.2
Cambridge	0.9	0.0	0.3	1.2	3.2	8.9	12.9	23.8	35.3	46.7	71.9	58.0
Providence	1.6*	0.4	0.6†	5.1	9.5	15.8	19.3	29.6	30.7	41.7	58.5	55.3
Fall River	1.7	2.6	2.4	3.6	12.0	25.5	23.6	24.0	34.4	50.1	43.6	68.9
Lowell	1.9†	1.9	2.8	9.4	10.6	16.7	22.5	20.6	31.0	50.3	44.3	36.4

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

The preceding articles were published in THE JOURNAL Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 1759; June 7, 1930, p. 1838; May 23, 1931, p. 1768; May 7, 1932, p. 1644; May 20, 1933, p. 1595; May 26, 1934, p. 1758; June 15, 1935, p. 2182; June 13, 1936, p. 2060; June 26, 1937, p. 2200; Aug. 6, 1938, p. 524; May 20, 1939, p. 2043; May 11, 1940, p. 1875; Feb. 28, 1942, p. 714, and Aug. 29, 1942, p. 1503.

1. Typhoid in the Large Cities of the United States in 1942, J. A. M. A., to be published.

Syracuse for three years. Yonkers reports no death from either typhoid or diphtheria during the past four years, Newark none in three years, none in Trenton for two years, none in Albany, Elizabeth, Erie, Paterson

TABLE 2.—*Death Rates of Eighteen Cities in Middle Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Rochester	0.0	0.0	0.0	0.7	7.5	16.9	12.7	22.1	32.4	32.3	45.9	96.6
Elizabeth	0.0	0.0	0.5†	4.5	13.2	19.2	19.3	14.8	51.7	67.4	60.5	79.3
Yonkers	0.0	0.0	0.3	0.6	10.4	17.0	17.7	25.3	....	....	....	....
Trenton	0.0	0.0	0.6	2.7	4.4	7.3	8.6	12.8	15.3	23.6	92.7‡	80.7‡
Newark	0.0	0.0	0.2	3.0	14.5	9.7	14.6	23.3	30.1	46.7	79.1	110.4
Syracuse	0.0	0.0	0.2†	0.4†	2.0	22.9	12.9	16.6	17.4	17.7	31.1	55.4
Paterson	0.0	0.7	0.9	6.3	9.1	18.5	13.5	16.1	25.5	52.9	111.8	145.4
Erie	0.0	0.0	0.0	4.0	5.8	16.8	13.1	17.7	27.1	42.3	23.1	....
Utica	0.0	1.0	0.0	1.2	13.4‡	....	....	....	....	....	....	....
Albany	0.0	1.5*	0.2*	3.0	7.5	12.8	10.4	20.0	31.6	26.9	....	....
New York	0.1	0.1	0.6	2.2	10.7	14.0	21.8	28.0	40.0	58.0	86.8	134.4
Philadelphia	0.2	0.2†	0.5	1.3	11.8	16.7	22.7	24.6	34.1	53.0	100.6	139.4
Buffalo	0.3	0.0	0.8†	4.9	9.1	24.0	27.3	32.0	18.4	24.8	55.5	60.9
Jersey City	0.7†	1.0	2.4	6.0	11.5	18.4	21.0	21.2	32.6	57.9	85.4	108.6
Scranton	0.7†	0.0	0.7	1.7	11.7	12.3	22.1	23.4	....	....	77.8‡	48.6‡
Pittsburgh	0.7	0.1	1.3	5.1	11.5	20.1	22.3	29.3	30.4	36.9	52.9	86.4
Reading	0.9	0.0	2.5	3.6	7.3	21.1	16.9	35.7	29.2	70.1	72.0	94.1
Camden	1.7	0.0	2.7	8.1†	21.9	20.3	21.2	38.8	48.9	52.6	93.8	194.0

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
# Incomplete data.
¶ Diphtheria data furnished by Pennsylvania Department of Health, Harrisburg.

TABLE 3.—*Death Rates of Ten Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Wilmington	0.0	0.9	1.6	6.2	10.9	11.6	15.2	18.0	27.8	50.9	84.9	83.8
Baltimore	0.2	0.6†	1.0†	1.7	7.6	11.4	13.5	14.2	16.1	23.0	68.1	70.0
Washington	0.4†	0.3†	2.8	3.7	7.1	10.5	11.9	8.9	11.2	25.5	50.9	77.9
Richmond	0.3*	1.0	1.7†	3.5†	6.9	9.8	5.8	7.0	9.8	21.4	17.6	59.7
Miami	0.6	0.0	2.2†	3.5	5.4‡	....	....	....	....	....	....	....
Jacksonville	0.6	1.7	2.4	5.5	6.6‡	....	....	....	....	....	....	....
Norfolk	0.7	2.1†	2.4	4.6	4.1	4.3	6.1	6.7	17.0	....	....	....
Tampa	1.8*	1.8	3.1†	4.0	4.6	5.2	9.7‡	....	....	....	....	....
Atlanta	1.9†	3.0†	4.6†	5.9†	7.0	12.3	10.1	12.5	14.2	11.1	10.5	8.8
Charlotte	4.0†	0.0	6.0†	4.1	....	....	....	....	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
# Incomplete data.

and Rochester in 1942. Utica, after seven years without a death from diphtheria, being dropped in 1941 because of a death in a resident adult, now returns to the select list. New York reports seven deaths, all among residents (ten in 1941, ten in 1940). Philadelphia records three deaths, all among residents (three in 1941, two among residents). Pittsburgh has not maintained its 1941 low (five deaths in 1942, four among residents; one death among residents in 1941). Buffalo, Camden and Jersey City each report two deaths. Five of the six Middle Atlantic cities (table 10) with no diphtheria death for two or more years report that from forty-two (Yonkers) to ninety (Elizabeth, Newark) per cent of preschool children have received their protective treatments. Data are not available for Trenton. Utica with its excellent long time record reports 76 per cent treated. Four cities (Buffalo, Erie, Pittsburgh, Camden) report less than 40 per cent treated. Data are not available for New York, Paterson and Scranton.

In 1940 Charlotte was added to the nine cities previously included in the South Atlantic states (table 3) (population 2,727,985). The figures for this city have been omitted in the tables for group comparison. The number of deaths in the original cities shows a definite decline (twenty-one in 1942, twenty-seven in 1941), especially among residents (thirteen in 1942, seventeen in 1941). The rate has decreased from 0.99 to 0.77. Wilmington is the only city on the honor roll. There were two such cities in 1941 (Charlotte, Miami). Two cities (Richmond, Tampa)) report that all deaths were among nonresidents. It is stated that in three cities (Atlanta, Charlotte, Washington) one third or more of deaths were among nonresidents (two of six in Atlanta, two of four in Charlotte, one of three in Washington). Baltimore records two deaths, both among residents; Jacksonville, Miami and Norfolk each one such death. Baltimore and Norfolk report that more than 75 per cent of preschool children have received their protective treatments, Washington 39 per cent and Atlanta 24 per cent.

In obtaining data for the cities of the East North Central group (table 4), Gary (no death in 1942) has been included for the third time. The figures for this city have been omitted in the tables for group comparison. The cities of this group (population 9,386,378) report an increase of eight deaths (sixty-nine in 1942, sixty-one in 1941). The rate has increased from 0.65 to 0.73. The number of deaths in Chicago increased by nine (forty-three in 1942, thirty-four in

TABLE 4.—*Death Rates of Nineteen Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Grand Rapids	0.0	0.0	0.2	0.7	2.0	19.6	13.5	20.0	26.6	17.2	32.4	90.2
Canton	0.0	0.0	0.7	1.7	2.9	17.5	15.1‡	....	....	....	....	....
Youngstown	0.0	0.0	0.7	3.3	10.5	18.5	11.9	40.5	33.5	28.0	17.6	28.4‡
South Bend	0.0	0.0	1.0	1.3	....	....	....	....	....	....	....	....
Toledo	0.0	0.0	1.1	2.7	7.2	22.4	14.1	25.4	20.4	36.5	34.6	90.5
Fort Wayne	0.0	0.0	1.9	4.0	5.1	13.1	6.3	....	....	....	....	....
Milwaukee	0.0	0.2	0.4	2.1	8.5	11.4	19.3	27.8	26.4	22.7	51.7	116.2
Peoria	0.0	0.0	3.8	5.3	4.9	7.4	10.8	10.6	10.1‡	14.0	14.6	68.0
Gary	0.0	0.9	2.8	1.4	....	....	....	....	....	....	....	....
Evansville	0.0	1.0	1.8	3.5	3.7	13.9	14.9	16.1	21.2	13.8	18.1	60.7
Cleveland	0.2†	0.2	1.0	2.5	15.3	14.7	20.0	24.6	20.8	42.6	45.3	95.7
Columbus	0.3	0.0	1.9	3.2	4.6	8.5	7.6	12.1	10.5	11.6	28.5	56.9
Akron	0.4	0.0	1.8	2.7	4.9	10.4	18.9	27.6	21.5‡	....	....	....
Dayton	0.5*	0.0	4.3	3.6	4.6	9.4	9.3	22.1	13.5	17.2	27.4	82.9
Detroit	0.7	0.4	1.1	5.2	19.7	24.3	32.2	33.3	22.6	38.5	62.9	132.9
Cincinnati	0.7	0.9	2.4†	3.1	5.2	10.6	13.2	13.9	17.0	17.3	37.3	103.7
Chicago	1.3	1.0	2.2	4.5	11.7	17.5	17.2	27.0	27.0	33.9	69.7	117.3
Flint	1.3	2.0†	2.8	2.7	4.5	29.9	25.5	12.7	11.0	16.5	6.9	69.2
Indianapolis	1.3	2.1†	3.6	7.9	6.6	11.7	21.4	13.5	13.3	15.9	26.4‡	97.3‡

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
# Incomplete data.

TABLE 5.—*Death Rates of Six Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Chattanooga	0.0	3.9	4.9	6.8	5.9	8.7	8.9	....	....	....	....	....
Birmingham	0.4*	1.5*	3.1†	4.4	5.4	5.3	7.2	8.3	6.2	13.4	16.5	26.3
Nashville	0.6	0.6	4.5†	8.0	11.8	8.0	8.9	7.3	10.3	13.9	30.1	28.4
Louisville	0.9†	0.3*	2.2	6.2	4.6	10.4	9.5	9.0	....	....	20.6‡	48.7‡
Memphis	1.4*	1.4*	2.2†	6.0	5.8	9.5	11.2	11.9	13.4	6.9	10.0	28.5
Knoxville	2.7*	0.0	8.2†	10.0	6.3	11.2	....	....	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
# Incomplete data.

1941), in Detroit by four (eleven in 1942, seven in 1941). For the cities as a whole there were sixty-five deaths among residents in 1942, fifty-three in 1941. The group remains in fourth place. Ten (including Gary) of the East North Central cities (Canton, Evans-

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ville, Fort Wayne, Gary, Grand Rapids, Milwaukee, Peoria, South Bend, Toledo, Youngstown) report no death from diphtheria in 1942. Canton, Fort Wayne, Grand Rapids, South Bend, Toledo and Youngstown

TABLE 6.—*Death Rates of Nine Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Duluth	0.0	0.0	0.2	0.4	2.0	6.0	10.2	8.8	38.4	29.1	7.6	69.5
Minneapolis	0.0	0.2	0.6	1.7	11.9	13.4	19.9	29.2	24.4	44.6	34.0	55.0
Omaha	0.4	0.0	1.4	5.1	6.4	22.9	35.8	15.8	24.5	20.5	28.2	82.9
Kansas City, Mo.	0.5†	0.0	0.9	2.3	4.7	14.4	22.8	15.7‖	....	....	....	....
Des Moines	0.6	0.0	1.5	4.3	5.2	13.1	16.0	15.1	23.5‖	....	....	....
St. Louis	0.7	0.2	2.4‖	4.8	10.5	16.1	24.4	23.7	19.4	43.3	62.9	67.7
St. Paul	0.7	0.3*	0.2	1.0	5.2	17.5	20.7	31.4	31.1	27.9	43.3	75.4
Wichita	0.8*	0.9	1.2	5.7	4.2	....	....	....	....	....	....	....
Kansas City, Kan.	1.6	0.0	1.6	3.5	4.6	9.8	23.1	12.4‖	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Incomplete data.

TABLE 7.—*Death Rates of Eight Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Oklahoma City	0.5	0.0	2.0	3.7	10.9	....						
New Orleans	0.6†	1.5†	4.3†	5.5	8.5	6.5	11.6	19.6	10.2	11.5	17.1	51.3
Houston	1.5	1.0†	2.6	5.6	8.2	6.4	6.1	7.8	10.5	4.2‖	2.4	1.8
San Antonio	1.6†	1.2†	4.1	5.7	10.5	7.7	8.7	6.7	7.6	17.1	20.6	4.4
Fort Worth	1.7*	2.2	3.5	7.2	10.6	1.7‖	2.6‖	2.6	2.5	5.4	....	....
Dallas	2.4†	2.4	4.6	10.0	9.8	8.3	7.4	6.9	8.1	16.9	16.0	21.8
Tulsa	4.2	0.7	1.7	6.8	12.5	8.2‖	....	....	....	....	....	....
El Paso	9.2	6.9†	4.7	8.5	7.3	20.0	17.6	29.2	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Incomplete data.

remain on the honor roll; Evansville, Gary, Milwaukee and Peoria have been added; Akron and Columbus, each with one death among residents, and Dayton with one among nonresidents have been dropped. Four cities (Fort Wayne, Grand Rapids, South Bend, Youngstown) report no death from diphtheria during the past five years, Canton and Toledo none for four years. Nine of the ten cities (except Toledo) that record no diphtheria death in 1942 also report no typhoid death in the same year. Fort Wayne and South Bend have been without deaths from these two causes for five years, Canton and Grand Rapids for three years. Subsequent to a period of four years with no diphtheria death, Akron reports one among residents in 1942. It is stated that a considerable increase in the number of diphtheria cases in Chicago in the fall of 1941 prompted the initiation of a special toxoid campaign resulting in a pronounced decrease in case incidence. The forty-three deaths were all among residents. Cincinnati records three deaths, all among residents; Cleveland two, one among residents; Detroit eleven, ten among residents; Flint two, both among residents; Indianapolis five, four among residents. The one death in Columbus was of a resident. Of the six cities (table 10) with no diphtheria death for two or more years only Fort Wayne could provide data to indicate the present percentage of preschool children treated (75). Chicago, Detroit and Cincinnati report 70 per cent or better treated. Approximately one half of the cities in this group reported that they did not possess satisfactory data concerning the number of children who had received their diphtheria protective treatments.

The cities in the East South Central states (table 5) (population 1,286,747) report a decrease in the number of deaths (twelve in 1942, fourteen in 1941), the rate having dropped from 1.09 to 0.93. The rate is now well below not only that of the West South Central group (1.90) but also that of the Mountain and Pacific cities (1.74). While only one city (Chattanooga) reports no death, three others (Birmingham, Knoxville, Memphis) record all deaths as occurring among nonresidents (not only in 1942 but also in 1941). Chattanooga and Memphis report no death from typhoid and Birmingham and Knoxville none among residents. Louisville and Nashville are the only cities in this group reporting deaths among residents (one each). In this group of cities there were ten deaths among nonresidents, two among residents. The rate for residents is only 0.16. It is estimated that 42 per cent of preschool children have received their protective treatments in Louisville, 50 per cent in Chattanooga, 60 and 61 per cent in Birmingham and Memphis, 80 per cent in Knoxville. No data are available for Nashville.

TABLE 8.—*Death Rates of Twelve Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1942	1941	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Long Beach	0.0	0.6	0.4	0.8	2.6	10.4‖	....	....	....	....	....	....
San Francisco	0.8	0.9	1.0	1.3	4.6	23.0	17.0	9.2	14.4	44.2	21.6	54.8
Portland	1.3	1.0†	0.3	1.3	6.4	11.3	6.0	12.3	12.2	20.2	....	....
Salt Lake City	1.3	1.3	1.0	1.3	10.1	12.5	14.5	15.1	34.2	46.0	14.8	56.7‖
San Diego	1.5	2.0	2.3	2.9	6.6	12.3	20.5	8.9	5.8	2.4	....	....
Spokane	1.6	0.0	0.5	0.7	7.5	11.3	4.2	7.6	25.8	....	20.2‖	18.1
Oakland	1.6†	0.3	2.5	2.0	7.4	18.8	8.1	10.3	16.1	29.1	....	....
Tacoma	1.8†	0.0	0.4*	3.9	9.3	12.4	7.7‖	....	....	....	....	....
Seattle	1.9†	0.5	0.4	0.4	1.4	6.6	5.5	5.2	12.5	13.4‖	27.2‖	....
Los Angeles	2.0	0.8†	2.5	5.2	7.0	14.4	7.1	7.5	15.3	25.4	35.8	46.0
Denver	2.7	2.5	3.3	3.9	8.9	23.2	6.7	10.2	20.8	29.6	27.3	130.2
Sacramento	7.5†	3.8†	3.1	4.1	....	....	....	....	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Diphtheria deaths from Chapin's Municipal Sanitation.
‡ Incomplete data.

TABLE 9.—*Four‡ Cities with Highest Diphtheria Rate for 1942*

El Paso	9.2
Sacramento	7.5†
Tulsa	4.2
Charlotte	4.0†

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‡ Two without Charlotte and Sacramento.

TABLE 10.—*Twenty-One Cities with No Diphtheria Deaths in 1941 and 1942*

Bridgeport ††	Lynn *	Syracuse ††
Canton †	Newark ††	Toledo †
Duluth ¶	New Bedford **	Trenton †
Elizabeth *	New Haven **	Waterbury †
Fort Wayne **	Rochester ‖	Worcester ††
Grand Rapids **	Somerville †	Yonkers **
Hartford	South Bend **	Youngstown **

‖ No diphtheria deaths in eight years.
¶ No diphtheria deaths in seven years.
* No diphtheria deaths in six years.
** No diphtheria deaths in five years.
† No diphtheria deaths in four years.
†† No diphtheria deaths in three years.

The nine cities in the West North Central states (table 6) (population 2,716,484) report a sharp increase in the number of deaths (fifteen in 1942, five in 1941) and a rate (0.55) nearly as high as that of two years

ago (0.66 in 1940, 0.18 in 1941). Only two cities (Duluth, Minneapolis) are on the honor roll. There were five such cities in 1941. Duluth continues to head the list with no diphtheria death during the past seven years; also no typhoid death for four years. Minneapolis for the first time reports no death from diphtheria. It is stated that the one death in Wichita was among nonresidents. St. Louis reports six deaths, five among residents (there were but two in 1941). After a period of five years with no death, Des Moines reports one among residents. Kansas City, Kan., and Kansas City, Mo., each record two deaths, the former two among residents and the latter one among residents. Following a period of three years with no death among residents, St. Paul records two such deaths in 1942. It is stated that in Des Moines, Omaha and St. Louis 61 per cent of the preschool children have been treated. Data are not available from the other cities.

The eight cities of the West South Central states (table 7) (population 2,048,692) report an increase from thirty-four deaths in 1941 (forty-one in 1940) to thirty-nine in 1942. The death rate has increased from 1.66 in 1941 (2.00 in 1940) to 1.90 in 1942. While in 1941 50 per cent of the deaths (seventeen of thirty-four) were among nonresidents, in 1942 only one third (thirteen of thirty-nine) were so classified. The deaths among residents have increased by nine, or 53 per cent. No city appears on the honor roll. It is stated that the three deaths in Fort Worth were among nonresidents. Oklahoma City, on the honor roll in 1941, now records one death among residents. In three cities (Dallas, New Orleans, San Antonio) it is stated that one third or more of deaths occurred among nonresidents. Three cities report rates in excess of 2.0 (Dallas, El Paso, Tulsa). Dallas records seven deaths, four among nonresidents; El Paso nine, two among nonresidents; Tulsa six, all among residents. Houston reports six deaths among residents. It is stated that 77 per cent of the preschool children have been given protective treatments in Dallas, 50 per cent in New Orleans, 36 per cent in Houston, 9 per cent in Tulsa. Data are not available for the other cities in this group.

In 1940 Sacramento was added to the eleven cities included in the Mountain and Pacific group (table 8). The figures for this city have been omitted in the tables for group comparison. The original cities (population 4,186,039) report a sharp increase in deaths (seventy-three in 1942, thirty-nine in 1941). The rate has increased from 0.93 in 1941 (the same in 1940) to 1.74 in 1942, which is higher than that reported by

TABLE 11.—*Thirty-Four ‡ Cities with No Diphtheria Deaths in 1942*

Albany	Long Beach	South Bend
Bridgeport	Lynn	Springfield
Canton	Milwaukee	Syracuse
Chattanooga	Minneapolis	Toledo
Duluth	Newark	Trenton
Elizabeth	New Bedford	Utica
Erie	New Haven	Waterbury
Evansville	Paterson	Wilmington
Fort Wayne	Peoria	Worcester
Gary	Rochester	Yonkers
Grand Rapids	Somerville	Youngstown
Hartford		

‡ Thirty-three with Gary.

TABLE 12.—*Thirty ‡ Cities with No Diphtheria and Typhoid Deaths in 1942*

Albany	Grand Rapids †	Peoria
Bridgeport	Hartford *	Rochester
Canton †	Long Beach	Somerville *
Chattanooga	Lynn ¶	South Bend ††
Duluth †	Milwaukee	Springfield
Elizabeth	Minneapolis	Trenton *
Erie	Newark †	Wilmington
Evansville	New Bedford ††	Worcester
Fort Wayne ††	New Haven	Yonkers †
Gary	Paterson	Youngstown

* No diphtheria or typhoid deaths in two years.
† No diphtheria or typhoid deaths in three years.
‡ No diphtheria or typhoid deaths in four years.
†† No diphtheria or typhoid deaths in five years.
¶ No diphtheria or typhoid deaths in six years.
‡ Twenty-nine without Gary.

TABLE 13.—*Nine Cities in Which All Diphtheria Deaths in 1942 Were Stated to Be in Nonresidents*

Dayton	Knoxville	Richmond
Birmingham	Memphis	Tampa
Fort Worth	Providence	Wichita

TABLE 14.—*Number of Cities with Various Diphtheria Death Rates*

	No. of Cities	40 and Over	30 and Over	10 and Over	5 and Over	Under 5	0.0
1900-1924	64	32	60	61	62	2	0
1925-1929	66	34	53	63	65	1	0
1930-1934	68	22	46	64	66	2	0
1935-1939	72	3	43	68	71	1	0
1940-1941	79	1	36	68	78	1	0
1915-1919	84	0	25	62	81	3	0
1920-1924	88	0	14	65	86	2	0
1925-1929	92	0	1	92	67	25	0
1930-1934	93	0	0	0	74	19	0
1935	93	0	0	2	17	76	19
1936	93	0	0	0	5	69	19
1937	93	0	0	0	3	70	20
1938	93	0	0	0	3	69	21
1939	93	0	0	0	2	59	32
1940 *	93	0	0	0	0	53	40
1941 *	93	0	0	0	1	53	39
1942 *	93	0	0	0	1	59	33

* Charlotte, Gary and Sacramento omitted.

TABLE 15.—*Total Diphtheria Death Rates for Eighty-Eight Cities, 1923-1942* *

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000 of Population
1923	31,600,848	4,078 †	13.13
1924	31,722,841	3,439	10.84
1925	32,384,834	3,133	9.67
1926	33,046,827	3,106	9.40
1927	33,708,820	3,483	10.36
1928	34,370,813	3,176	9.24
1929	35,032,806	2,758	7.87
1930	35,719,180	1,907	5.33
1931	35,921,860	1,366	3.81
1932	35,916,317	1,191	3.32
1933	36,032,265	861	2.39
1934	36,166,434	821	2.27
1935	36,348,921	771	2.12‡
1936	36,549,225	551	1.51‡
1937	36,751,422	571	1.55§
1938	36,956,409	467	1.26¶
1939	37,160,779	326	0.88#
1940	37,370,215	225	0.61‖
1941	37,370,215 ††	209	0.56**
1942	37,370,215 ††	260	0.70***

* The five following cities are omitted from this summary because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.
† Data for Fort Worth lacking.
‡ The rate for the ninety-three cities in 1935 is 2.12 (population 37,695,175, diphtheria deaths 780). The corresponding rate for 1936 is 1.52 (population 37,941,414, diphtheria deaths 587).
§ Rate for ninety-three cities in 1937 was 1.55 (population 37,459,330, diphtheria deaths 583).
¶ Rate for ninety-three cities in 1938 was 1.26 (population 37,680,155, diphtheria deaths 477).
# Rate for ninety-three cities in 1939 was 0.87 (population 37,900,854, diphtheria deaths 330).
‖ Rate for ninety-three cities in 1940 was 0.60 (population 38,060,602, diphtheria deaths 229).
** Rate for ninety-three cities in 1941 was 0.56 (population 38,060,602, diphtheria deaths 213).
*** Rate for ninety-three cities in 1942 was 0.69 (population 38,060,602, diphtheria deaths 263).
†† 1940 census figures used.

any group of cities in 1941. The number of deaths among residents has doubled (fifty-four in 1942, twenty-seven in 1941). Long Beach is the only city on the honor roll. Tacoma, after being on the roll for two years, reports two deaths, one among residents. In four cities (Oakland, Sacramento, Seattle, Tacoma) it is stated that one third or more of deaths occurred among nonresidents. Three cities report rates of 2.0 or more (Denver, Los Angeles, Sacramento). Denver records twelve deaths, ten among residents (in 1941 eight, six among residents); Los Angeles thirty-one, twenty-one among residents (in 1941, twelve, four among residents); Sacramento eight, three among residents (in 1941 four, two among residents). In Los Angeles there has been an increase of seventeen deaths among residents. San Francisco reports five deaths among residents, San Diego three such deaths, Salt Lake City and Spokane two each. Of five deaths in Oakland, three were among residents; of four in Portland, three among residents; of seven in Seattle, four among residents. The health director of San Francisco states that four of the five deaths in his

TABLE 16.—*Total Diphtheria Death Rates per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions*

	Population *	Diphtheria Deaths 1942	Diphtheria Deaths 1941	Diphtheria Death Rates 1942	Diphtheria Death Rates 1941	Diphtheria Death Rates 1935-1939	Diphtheria Death Rates 1930-1934	Diphtheria Death Rates 1925-1929
New England	2,579,158	11	11	0.43	0.43	0.85	3.26	8.34
Middle Atlantic	13,129,195	23	29	0.17	0.17	0.65	2.59	9.97
South Atlantic	2,727,885	21	27	0.77	0.99	2.16	5.54	7.37‡
East North Central	9,286,376	69	61	0.73	0.65	1.82	3.69	11.21†
East South Central	1,288,747	12	14	0.93	1.09	3.37	6.35	6.54
West North Central	2,716,494	15	5	0.55	0.18	1.33	3.22	7.82
West South Central	2,949,692	39	34	1.90	1.65	3.85	6.55	9.24‡
Mountain & Pacific	4,186,929	72	39	1.74	0.93	1.71	2.69	6.78

‡ Lacks data for 1925 for Jacksonville and Miami.
† Lacks data for South Bend.
‡ Lacks data for Oklahoma City for 1925 and 1926.
* 1940 census figures used.

city occurred in adults over 35 years of age. The fifth occurred in a child aged 2 years and 4 months who had been a resident of San Francisco for six months, nine months in the state. It is stated that 80 per cent of the preschool children have been given protective treatments in Oakland, 64 per cent in San Francisco, 50 per cent in Long Beach, 26 per cent in Seattle. Data are not available for the other cities.

Of the entire ninety-three cities there was one (the same city in 1941) with a rate in excess of 5.0 (table 14). The number of cities with no deaths from diphtheria has decreased by six (thirty-nine to thirty-three). The number of cities with rates below 5.0 has increased by six (fifty-three to fifty-nine). For the eighty-eight cities (table 15) for which data are available since 1923 there occurred two hundred and sixty deaths from diphtheria in 1942, significantly higher than for the past two years (two hundred and nine in 1941, two hundred and twenty-five in 1940). Is there to be a continued change in the trend? The rate, however, for this group of cities is for the fourth consecutive year less than 1.0. The rate for the ninety-three cities (0.69) is approximately the same as that for the eighty-eight cities (0.70). The actual number has increased by fifty (from two hundred and thirteen to two hundred and sixty-three). War travel may have been an influence in increasing the incidence of diphtheria, especially on the Pacific coast and in certain overcrowded industrial areas. Again lack of professional personnel may have slowed up the programs for protective treatments. No explosive epidemics are reported by the health officers. The tendency for diphtheria to become relatively more prevalent among the higher age groups may be one explanation for the higher rates. It will be interesting to review the picture for 1943.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THYTUITARY NOT ACCEPTABLE FOR N. N. R.

UNDER THE PROPRIETARY NAME THYTUITARY, A PREPARATION CONTAINING THE EXTRACTS OF THE THYMUS AND POSTERIOR PITUITARY GLANDS WAS OFFERED BY THE BLUE LINE CHEMICAL COMPANY FOR THE COUNCIL'S CONSIDERATION. THE COUNCIL AUTHORIZED A STUDY BY DR. JACOB SACKS WHICH ON THE BASIS OF ASSAYS OF THYTUITARY SHOWED ONLY THAT IT HAD THE ACTION OF EQUIVALENT DOSES OF POSTERIOR PITUITARY EXTRACT. WITHOUT CONSIDERATION OF THE PROPRIETARY NAME, THE COUNCIL DECLARED THYTUITARY UNACCEPTABLE FOR INCLUSION IN NEW AND NONOFFICIAL REMEDIES BECAUSE OF IMPLIED OR EXPLICIT CLAIMS THAT ITS ACTION WAS DIFFERENT FROM THAT OF THE PHARMACOPEIAL POSTERIOR PITUITARY INJECTION. THE FIRM REQUESTED POSTPONEMENT OF PUBLICATION OF A STATEMENT OF THE COUNCIL'S CONSIDERATION UNTIL INVESTIGATIONS WITH A DEVICE CALLED THE "LORAND TOCOGRAPH" WERE COMPLETED. THE RESULTS OF THIS INVESTIGATION WERE FILED WITH THE COUNCIL TOGETHER WITH A CAREFUL STUDY BY DR. WILLIAM T. HYATT. THIS STUDY FAILS, AS THE FIRM ADMITS, TO ESTABLISH THE POINT WHICH IT HOPED TO DEMONSTRATE, THAT IS, A DEFINITE DIFFERENCE BETWEEN THE ACTIVITY OF ITS PRODUCT AND THAT OF THE U. S. P. POSTERIOR PITUITARY INJECTION.

THE FIRM HAS PREPARED A CAREFUL TABULATION OF THE PUBLISHED LITERATURE ON THE USE OF COMBINED EXTRACTS OF POSTERIOR PITUITARY AND THYMUS. PERUSAL OF THIS MATERIAL SHOWS THAT VERY FEW ATTEMPTS HAVE BEEN MADE BY EITHER LABORATORY OR CLINICAL INVESTIGATORS TO CONDUCT DEFINITELY PARALLEL TRIALS OF POSTERIOR PITUITARY INJECTION AND THE MIXED PREPARATIONS. THE COMPARISONS REPORTED FAIL TO DEMONSTRATE ANY ADVANTAGE FOR THE MIXTURE.

AS A RESULT OF THE FOREGOING STUDY, THE FIRM SUBMITTED AN ADVERTISING CIRCULAR DESIGNED TO LIMIT THE CLAIMS TO ASSERTIONS WHICH COULD BE MADE WITHOUT QUESTION AS TO POSTERIOR PITUITARY ALONE. THE FIRM, HOWEVER, EXPRESSED ITS INTENTION OF CONTINUING TO MARKET THYTUITARY. IN VIEW OF THIS THE COUNCIL VOTED TO PUBLISH, FOR THE INFORMATION OF PHYSICIANS, A STATEMENT CONCERNING ITS REJECTION OF THYTUITARY, AND THE FOLLOWING STUDY MADE FOR THE COUNCIL BY DR. JACOB SACKS.

AUSTIN E. SMITH, M.D., Secretary.

THYTUITARY

JACOB SACKS, PH.D., M.D.
ANN ARBOR, MICH.

The use of thymus extract in the attempt to modify the oxytocic of posterior pituitary injection is by no means new. A preparation, "Thymophysin," was introduced in Europe about fifteen years ago with the claim that the contractions resulting from its administration differ from those which follow the use of posterior pituitary injection alone in being rhythmic rather than tonic. On this basis it was claimed that Thymophysin could be used with safety to stimulate weak pains in the first stage of labor and to shorten the duration of the second stage. In the publication[1] in which this preparation was presented there was only the most limited evidence for such a modification of the action of posterior pituitary injection by thymus extract.

A thorough pharmacologic study of this preparation, and of the effect of thymus extract on the pressor and oxytocic actions of posterior pituitary injection was made by Nelson.[2] He found that there was no difference which could be detected experimentally between the oxytocic and pressor activities of posterior pituitary injection alone, and of a mixture of extracts of posterior pituitary and thymus. The pressor and oxytocic potencies of Thymophysin were found to be about one fourth to one third of those claimed on the label, but when equivalent

From the Department of Pharmacology, University of Michigan Medical School.

1. Temesvary, N.: Action of Thymus Extract on Uterus and Its Practical Use in Obstetrics, Zentralbl. f. Gynäk. **50**: 322 (Feb. 6) 1926.
2. Nelson, E. E.: Thymophysin Temesvary, J. A. M. A. **96**: 352 (Jan. 31) 1931.

doses of posterior pituitary injection and Thymophysin were compared on excised uteri or on blood pressure no difference in action could be demonstrated. Thymophysin was declared unacceptable for inclusion in New and Nonofficial Remedies (THE JOURNAL, March 14, 1931, p. 860).

The dangers and limitations in the use of posterior pituitary injection in the first stage of labor are too well known to require any discussion here. They have been emphasized again in three recently published papers.[3] The demonstration by Nelson that thymus extract does not modify the action of posterior pituitary injection would seem to have established that a mixture of the two has the same dangerous properties as the pituitary extract itself. It is established beyond question that posterior pituitary injection does increase the strength of contraction of uterine musculature. It is also well known that the clinical use of this preparation frequently results in an increased blood pressure.

The clinical literature on Thytuitary is scanty, and pharmacologic studies are entirely wanting. There are brief reports by Wiesen,[4] Cadwallader,[5] Arthur,[6] Hissong[7] and Clemens.[8] Wiesen used it in 50 cases of primary and secondary uterine inertia, Cadwallader in 110 cases of labor; Arthur reports 9 cases and Hissong 3. In all five papers it is stated that Thytuitary shortens the duration of labor and does not lead to untoward results. Very few details are given, and in none of these brief reports are there any control observations which could serve as a basis for evaluating the preparation. In three of the papers there are expressions which are practically identical in wording with statements that have appeared in advertising matter which has been distributed by the promoters of Thytuitary.

The present studies were undertaken to establish whether there is any difference in the actions of Thytuitary and of posterior pituitary injection. Comparisons were made of the effects of the two in isolated uteri of guinea pigs and of rabbits, and of the pressor effects on the dog. The Thytuitary used for these experiments was received in the original sealed packages. The standard posterior pituitary injection was made from reference standard powder obtained from the Board of Trustees of the U. S. Pharmacopeia and contained 2 units per cubic centimeter, the strength prescribed for assay purposes by the U. S. P.

Several assays of the oxytocic potency of Thytuitary were made by the method of the U. S. P., and these showed that, within the limits of accuracy of this method, Thytuitary contains 10 units per cubic centimeter, being therefore equivalent in potency to the official Injectio Pituitarii Posterioris.

With regard to the type of uterine contraction produced, it was found that there was no essential difference between Thytuitary and posterior pituitary injection. In comparable doses the effects produced by the two were qualitatively and quantitatively the same. This was true for both guinea pig and rabbit uteri. In those cases in which posterior pituitary injection caused tonic contractions, Thytuitary also produced this type of activity. Where posterior pituitary injection produced rhythmic activity, Thytuitary also caused rhythmic contractions. From this it is clear that, so far as can be ascertained experimentally, there is no detectable difference between Thytuitary and posterior pituitary injection with respect to oxytocic action.

Comparisons of the pressor activity of the two preparations were also made on pigs anesthetized with morphine and urethane, in which bilateral vagotomy had been done. Here again it was found that the pressor activity of Thytuitary was equivalent to that of the official Injectio Pituitarii Posterioris, and the character of the blood pressure rise was the same as that caused by the latter preparation.[9]

The results of these experiments are in agreement with those obtained by Nelson,[2] in which it was found that the addition of thymus extract to posterior pituitary injection did not modify in any way the pressor or oxytocic activity of the latter preparation. The clinical results that have been reported can all be accounted for on the basis of the known effects of posterior pituitary injection.

CONCLUSIONS

1. Assay of Thytuitary by the method of the U. S. Pharmacopeia for posterior pituitary injection showed that it contains approximately 10 units per cubic centimeter and is therefore equivalent in oxytocic activity to the official preparation.

2. When equivalent doses of Thytuitary and posterior pituitary injection were compared on isolated uteri of guinea pigs and rabbits, no differences in action could be demonstrated.

3. When equivalent doses of Thytuitary and posterior pituitary injection were injected intravenously into anesthetized, vagotomized dogs, no differences in pressor action could be demonstrated.

The Council is of the opinion that the evidence in the foregoing report by Dr. Sacks indicates that Thytuitary is, in effect, a preparation of the posterior lobe of the pituitary, and it appears that the firm's claims of any special activity of its preparation Thytuitary are without adequate basis. Authorities in obstetrics agree that the administration of posterior pituitary injection in the first stage of labor is dangerous.

The Council therefore declared Thytuitary (Blue Line Chemical Company) unacceptable for inclusion in New and Nonofficial Remedies.

3. Sharkey, J. A.: Should Solution of Posterior Pituitary Be Used in First and Second Stages of Labor? J. A. M. A. **115**: 1315 (Oct. 19) 1940. Pendleton, G. F.: Abuse of Solution of Posterior Pituitary During Early Labor, ibid. **115**: 1318 (Oct. 19) 1940. De Lee, J. B.: Use of Solution of Posterior Pituitary in Modern Obstetrics, ibid. **115**: 1320 (Oct. 19) 1940.

4. Wiesen, R. P.: Clinical Estimation of Thytuitary as Obstetric Aid, Am. J. Obst. & Gynec. **23**: 598 (April) 1932.

5. Cadwallader, J. M.: A Review of 110 Obstetrical Cases, M. World **51**: 417 (Oct.) 1933.

6. Arthur, H. M.: The Obstetrical Clinic, M. World **52**: 373 (Oct.) 1934.

7. Hissong, C. G.: Thytuitary, Eclectic M. J. **93**: 416 (Oct.) 1933.

8. Clemens, J. P.: Cervix in Parturition, M. Rec. **146**: 33 (July 7) 1937.

9. The Council office has on file the kymographic studies of uterine contractions and pressor responses in these experiments.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

LACTATE RINGER'S SOLUTION (See New and Nonofficial Remedies, 1943, p. 462).

The following dosage forms have been accepted:

ELI LILLY & COMPANY, INDIANAPOLIS

Ampoules Lactate Ringer's Solution 25 Times Concentrated: 10 cc. and 20 cc. When 1 volume of the solution is diluted with 24 volumes of sterile distilled water, each hundred cubic centimeters of the diluted solution is equivalent in strength to lactate Ringer's solution-N. N. R.

PURIFIED SOLUTION OF LIVER (See Liver Injection, New and Nonofficial Remedies, 1943, p. 392).

The following additional dosage form has been accepted:

THE ARMOUR LABORATORIES, CHICAGO

Liver Liquid Parenteral, 15 U. S. P. Units per Cc.: 1 cc., 5 cc. and 10 cc. rubber capped vials. A sterile aqueous solution of liver, preserved with 0.5 per cent phenol.

SODIUM r-LACTATE ONE-SIXTH MOLAR (See New and Nonofficial Remedies, 1943, p. 461).

The following dosage forms have been accepted:

ELI LILLY & COMPANY, INDIANAPOLIS

Ampoules Sodium r-Lactate Solution One Molar: 10 cc., 40 cc. and 100 cc. Each 10 cc. contains 1.12 Gm. of sodium r-lactate. Each 1 volume of this solution must be diluted with 5 volumes of sterile distilled water to obtain a sterile approximately isotonic solution equivalent in strength to sodium r-lactate one-sixth molar.

OVARIES (See New and Nonofficial Remedies, 1943, p. 398).

The following additional dosage form has been accepted:

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

Ampule Solution of Estrogens (in sesame oil): 1 cc. Each cubic centimeter contains the equivalent of 20,000 international units of estrone and 0.5 per cent of chlorobutanol as a preservative.

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

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MEDICAL EDUCATION AND THE WAR

A Series of Articles by Federal Authorities Concerning the Medical Services of Wartime and the Selection and Training of Premedical and Medical Students

THE UNITED STATES ARMY AND MEDICAL EDUCATION

Major General Norman T. Kirk
Surgeon General, U. S. Army

The Army Specialized Training Program, explained more in detail elsewhere in this issue, is the result of planning for the future by the War Department. Recognizing that the present demands on the Medical, Dental and Veterinary Corps will be definitely increased as the war continues, it is necessary to prepare for future eventualities before critical needs arise.

An announcement of the projected plan of the Army Specialized Training Program was made by the Commanding General, Army Service Forces. This was followed by a meeting between the Council on Medical Education and Hospitals and the Surgeon Generals in Washington. It was the feeling at this meeting that subsidization of medical education had certain drawbacks, but there were other considerations which outweighed these. It should be a source of pride to the medical profession that the educational program is carried to completion and a degree granted to graduates only in the case of physicians, dentists and veterinarians. Those soldiers attending engineering schools, electronics, physics and so on may not be granted a degree.

The recognition of the requirements of medically qualified graduates set the pace for mutual agreement and understanding of medical problems between the Council and the War Department. Many problems have arisen regarding the accelerated medical educational program. My office has had to seek the cooperation of hospitals and medical schools in the solving of some of these problems. The hearty response to any request leads me to express my deep appreciation to those members of the profession who have worked so unselfishly to make this planned program a success.

It was estimated early in the war that the planned army would require 63,000 physicians by the end of 1943. However, when the total number of physicians in the United States is considered, it is estimated by reliable sources that the Army will not be able to secure more than 48,000 without subjecting the civil population to considerable hardship. Every position calling for a medical officer in the Army Ground Forces, Army Air Forces and Army Service Forces was considered in order to determine where the services of such officers could be done away with. As a result of this work we have developed an effective plan for the utilization of the 48,000 medical officers to give the best possible care to the members of the Army. A close study of assignments must be maintained at all times in order to utilize fully the professional abilities of the physicians and leave administrative work, as far as possible, to those not qualified as medical officers.

We must further consider the normal attrition of medical officers, which is similar to that in civilian life but augmented by the increased casualty expectancy of armed forces. In the recent African campaign the casualty rate was much lower than expected, owing to careful negotiations and prearranged plans between the leaders of the Allied Nations and the French government in North Africa. Such a state of cooperation cannot be expected in forthcoming activities on the European continent, and this will never be true in the Pacific theater of operations. It is obvious that the offensive role in this war will increase tremendously the casualty rate of both enlisted and commissioned personnel. This means that the present attrition of medical officers will assume higher proportions as a result of losses of wounded, prisoners of war, killed or missing in action.

The increased tempo of warfare in the Southwest Pacific will also add to the casualty rate in that theater of operations. With the battle fronts extending over every part of the globe, the work of the Medical Department is assuming tremendous proportions and the strain, both mentally and physically, adds to the normal attrition of medical officers.

The augmented medical program will increase the number of available physicians per year. Of this num-

ber it is contemplated that approximately 55 per cent of the medical graduates will be necessary to maintain the strength of the Medical Corps at a properly functioning level (48,000). Assuming that 6,000 (plus) graduates are available each year, this means that 3,300 physicians will be needed as replacements in the Army. Our present figure for separations from the service has increased in 1943 over the figure of 1942. The average rate of separations from the service from all causes is approximately 35 per week. This will probably be increased to 45 per week within the next twelve months, or a total of 2,340 losses for the Medical Corps.

When we consider that at the present time 25 to 35 per cent of all applicants for commission are rejected by reason of physical disqualification alone, the figure 3,300 (representing an estimated 55 per cent of the yearly graduates of medicine) is just enough to provide the estimated replacements required in the Medical Corps, with a small leeway for adjustment. In other words, the War Department is faced with the absolute necessity of obtaining that number of replacements every year without regard to increasing the overall number of medical officers on active duty.

Thus we can see the necessity of a plan which will furnish the required physicians for duty with the Army. The Army Specialized Training Program embodies this program. Civilian medical care will not be depleted to the danger stage, since approximately 20 per cent of the graduates will be available for civilian replacements while many of those physicians separated from the service will be fully capable of carrying on an average civilian medical practice. One great danger in such a program lies in the postgraduate training of the individual physicians.

Present postwar plans are being formulated to combat this weakness and enable physicians to secure advanced training. After the war many physicians will decide to remain in the service, as happened in the past war, and no doubt will be privileged to increase their training by proper assignment to professional duties within the Army. Civilian hospitals and schools will be able to provide adequately for the advanced training of those physicians who return to civilian life. Close study of this program will show the need of cooperation between the members of the medical profession, both within and without the military service.

THE ARMY SPECIALIZED TRAINING PROGRAM

Colonel Francis M. Fitts, M. C.
Army Service Forces

A review of the problems of medical education during 1942-1943 cannot disregard those occasioned by the educational programs adopted by the Army and the Navy with a view to assuring for the armed forces an uninterrupted supply of young medical officers during the period of the national emergency. It is too early to judge results; possibly an early termination of hostilities may obviate the necessity of observing the operation of the more radical features of the program's departure from normal peacetime procedures.

In December 1942 the Secretary of War and the Secretary of the Navy, in a joint statement, recommended the utilization of college facilties in specialized training for the Army and the Navy. The objective of the Army program was announced to be "To meet the need of the Army for specialized technical training of soldiers on active duty for certain Army tasks for which its own facilities are insufficient in extent or character. To that end the Army will contract with selected colleges and universities for the use of their facilities and faculties in effecting such training of selected soldiers in courses prescribed by the Army."

The reason for this action is apparent: under existing conditions the constant and adequate supply of medical officers required by the Army as replacements for anticipated losses among those on active duty could not be assured. Established civilian sources are being rapidly depleted. Additional medical officers must be procured through the specialized training of potential physicians already in, or entering, the military service.

It was not considered practicable to continue the training of members of the military establishment in medicine and premedicine on a purely voluntary basis and on an inactive duty status. Since the facilities of the Army are not those required for the training of physicians, the Army Specialized Training Division of the Army Service Forces was requested to make the necessary arrangements for the selection and training of qualified enlisted men in medicine, and in the preparation for the study of medicine, in sufficient numbers to assure the loss replacements required to maintain an adequate medical service for the Army.

The same problem confronted the War Department in 1917: provisions were imperative to guarantee the continued supply of physicians to the Army. The solution was quite analogous to that adopted in 1942 for the continuation of nonprofessional training, at the college level, of potential officer candidates: enlistment in the Enlisted Reserve Corps and deferment of call to active duty for the purpose of the completion of the academic preparation for military duties. On the establishment of the Student Army Training Corps in 1918 and the activation of units of that corps in colleges and universities throughout the country, the members of the Medical Department Enlisted Reserve were called to active duty and assigned to the Student Army Training Corps to pursue their professional studies in uniform. No provisions were made for premedical training as such or for selective procedures for assignment to Student Army Training Corps units at medical schools for the purpose of pursuing instruction in medicine, nor did the government assume the responsibility of paying for this specialized training. A month after the inauguration of the program the armistice was signed, and shortly thereafter the enlisted men of the Students Army Training Corps were discharged to return to their briefly interrupted studies.

In 1939, with the same end in view, the War Department approved measures whereby, during a national emergency, medical students then holding commissions in the Officers' Reserve Corps would not be called to active duty until after the completion of their professional studies. This was followed in 1941 by provisions for placing other medical students and premedical students accepted for admission to the next ensuing class in approved schools of medicine under Army jurisdiction. This was accomplished through their voluntary appointment in the Medical Administrative Corps. Their call to active duty has been deferred in order

that they may complete their professional training with a view to appointment in the Medical Corps, Army of the United States. Approximately 60 per cent of the students in these schools availed themselves of this opportunity to complete their medical education and accepted the obligation of future military service.

No similar provisions could be considered for premedical students whose admission to the study of medicine was not assured. However, under the general preinduction training program adopted in 1942 this group was permitted to enlist in the Enlisted Reserve Corps and, prior to the initiation of the Army Specialized Training Program, were permitted to continue their studies on an inactive duty status. Those who had not been accepted for matriculation for future entering classes in medicine have been called to active duty. They are eligible for the resumption of collegiate training if selected for assignment to the Army Specialized Training Program at the completion of their basic military training, thirteen weeks in duration. The probability of their resuming premedical studies, however, is no greater than that which they would have had of entering on the formal study of medicine in civil life.

The majority of the premedical students who were members of the Medical Administrative Corps or the Enlisted Reserve Corps and who have assured vacancies in medical schools through their formal acceptance for admission to future entering classes are continuing the premedical studies prerequisite to such matriculation on an inactive status at their own expense; others have been assigned to Army Specialized Training units for the completion of their premedical training. Still others who have completed their premedical studies are receiving basic military training or are serving in military hospitals pending transfer to the Army Specialized Training unit at the institution by which they have been matriculated.

WOMEN NOT INCLUDED

It is anticipated that training in medicine under the Army Specialized Training Program will have been initiated by July 23, 1943 in all approved schools of medicine with the exception of the Woman's Medical College of Pennsylvania. It is not contemplated that the utilization of the facilities of this school will be requested or that female enlisted personnel of the Army will be assigned to the Army Specialized Training Program for training in medicine. Since women are not under the potential compulsion of Selective Service, their entrance into the military service is purely voluntary. There is no cause for either the interruption or the postponement of their medical education. The supply of women physicians should not be affected by the national emergency.

SELECTION OF MEDICAL STUDENTS

The assignment of enlisted men to the Army Specialized Training units at approved schools of medicine is, until further notice, restricted to those who are currently enrolled in, and to those who have been accepted by, such schools for future entering classes. This restriction of selection for the continuation of premedical training and assignment for professional training to the enlisted men for whom there are assured vacancies in a medical school is necessitated by the fact that freshman classes have been filled for 1943, the first half of 1944 and, in a number of schools, for late 1944. If these applicants are in, or enter, the active military service they will be assigned to the Army Specialized Training Program for the completion of prerequisite premedical training and subsequent timely transfer to the Army Specialized Training unit at the school by which they have been accepted.

It is obvious, however, that medical schools cannot continue to fill their entering classes from civilian sources only: many students contemplating or preparing for the study of medicine will have been inducted into one of the armed forces before acceptance by an accredited school is possible. Others will be unwilling to remain out of the military service for the purpose of preparing themselves for the study of medicine. If the supply of physicians not only to meet the requirements of the armed forces during the current emergency but also for postwar civilian needs is to continue beyond those now in or accepted for medical training, appropriate steps must be taken by the Army and by the Navy to assure necessary preparatory studies by qualified individuals in active military service with a view to subsequent training in medicine.

PREMEDICAL TRAINING

In order that detailed plans may be made for such premedical training under the Army Specialized Training Program the War Department is taking steps to determine the number of Army trainees who may be assigned to Army Specialized Training units at medical schools for instruction in future freshman classes. The program of the Army will require at least 55 per cent of the vacancies in medical schools. The possibility is being explored of a mutual agreement whereby carefully selected enlisted men, not accepted as individuals by the individual schools of medicine, may be assigned to fill these vacancies with a view to receiving the degree of doctor of medicine and to being appointed in the Medical Corps of the Army of the United States.

The procedures involved in the selection and training of the enlisted men whom the medical schools will be requested to train in medicine may be briefly outlined as follows:

On entering the Army the recently inducted soldier is given certain general classification tests, the results of which are entered on the record which accompanies him to the unit or installations in which he receives his basic military training. Those with certain high scores (115 or better on the Army General Classification Test) will then appear before Army Specialized Training Program field selection boards to determine whether they should be assigned to this program for training at the college level. The actual field of such training and the academic level at which training should begin will be determined at the classification and assignment units to which these selected soldiers are first assigned (Specialized Training and Reassignment unit, referred to as a STAR unit).

From the STAR unit candidates who are manifestly suitable for or interested in the study of medicine will be transferred to appropriate training units to begin premedical studies at the basic level. The premedical curriculum in the first two terms, of twelve weeks each, is common to that followed by trainees tentatively selected for engineering specialties. This basic curriculum includes mathematics, physics, general chemistry and English, as shown in the accompanying table. Descriptions of the courses listed are available from the Army Specialized Training Division.

It is during the second term that the real selection for premedical training is to be made for subsequent training in medicine. Representatives of all the approved schools of medicine will participate in this

selection. It is on them that the War Department is depending for expert advice in determining the enlisted men who should receive training in premedicine. Since premedical training is, per se, of little value in the military service, attrition must be held to a minimum. At this level trainees not considered fully qualified, especially as regards fitness and aptitude for and attitude toward the study of medicine, appointment in the Medical Corps of the Army of the United States and the practice of the profession of medicine in civil life, may be considered for other fields of specialized training under the Army Specialized Training Program.

Outline of Army Premedical Curriculum

Subject		Total Hours per Week*	Required Distribution: Class	Required Distribution: Laboratory
1st Term				
Mathematics	AST-406	6	6	0
Physics	AST-304	7	4	2(1*)
Chemistry	AST-205	3	3	0
English	AST-111	3	3	0
History	AST-133	3	3	0
Geography	AST-103	2	2	0
Total		24	21	3
2d Term				
Mathematics	AST-407	5	5	0
Physics	AST-305	7	4	2(1*)
Chemistry	AST-206	6	2	4
English	AST-111	2	2	0
History	AST-133	2	2	0
Geography	AST-133	2	2	0
Total		24	17	7
3d Term				
Qualitative Analysis	AST-211	9	3	6
Physics	AST-306	7	4	2(1*)
Biology	AST-051	7	3	4
English	AST-111	2	2	0
History	AST-133	2	2	0
Geography	AST-103	2	2	0
Total		29	16	13
4th Term				
Organic Chemistry	AST-261	9	3	6
Biology	AST-052	7	3	4
English	AST-112	2	2	0
Psychology	AST-004	4	4	0
Selected Courses [b]	.....	6	6	0
Total		28	18	10
5th Term				
Organic Chemistry	AST-262	9	3	6
Comparative Anatomy or Embryology	AST-053 or AST-054	7	3	4
English	AST-113	2	2	0
Psychology	AST-005	4	4	0
Selected Courses [b]	.....	6	6	0
Total		28	18	10

* Required by contract.
* One hour for writing reports.
[b] 1. French, German, Spanish for students who have studied one of these in high school or college—must continue in 5th Term.
2. Economics—must continue in 5th Term.
3. Public administration.
4. Quantitative analysis.
5. Physical chemistry.

The trainees selected for future training in medicine begin their biologic studies in the third term and continue them through term five, the last term of the premedical curriculum. Organic chemistry and psychology are added in the fourth and fifth terms. In these two terms eight semester hours are available for subjects selected by the institution based on the interest and special aptitude of the trainee. This will permit a brief refresher course in a modern foreign language for trainees who have had appropriate previous instruction. It has not been considered possible to include a language as a prescribed subject to the exclusion of other universal requirements.

While it is felt that the complete task of preparing physically qualified male students for the study of medicine will devolve principally on the Army and the Navy, it is certain that premedical students will continue to enter the military service at various academic levels. At the completion of their basic military training these enlisted men must be given serious consideration for the continuation of their premedical training and subsequent training in medicine under the Army Specialized Training Program. The selection of these enlisted men for such training will be made at STAR units if they are to be assigned for premedical studies in terms above the second. This selection must be conducted with the same care as—indeed even greater care than—in the case of trainees who are assigned to the Army Specialized Training Program at the basic level. Separate curriculums designed to complete premedical training previously begun in civil life have been arranged for these trainees.

The progress of the premedical trainee will be checked both by the usual faculty examinations and by periodic nationwide Army tests. The enlisted men who satisfactorily complete the premedical curriculum will be considered available for transfer to Army Specialized Training units for training in medicine or dentistry.

Such assignments must necessarily be governed by timely regional vacancies. The Army trainee will not make application for admission for the study of medicine, nor will he be accepted as an individual for a class in which vacancies are reserved for the War Department. His general fitness and acceptability for the study of medicine have been determined. If recommended at the completion of premedical training, he will be academically qualified. If it is proved that he cannot continue satisfactory progress in his medical studies, he will be relieved from the Army Specialized Training Program for assignment to other duties.

Because of the necessity of assigning Army trainees to fill vacancies which have been reserved for the War Department on a strictly numerical basis, rather than by name, no assurance can be given that individual students accepted for classes in which reservations have been specifically made for the Army will be assigned to the Army Specialized Training unit at that school. It is realized that such a policy will limit the personal selection of medical students which has proved so satisfactory and successful in previous years.

The question of individual assignment has been given careful consideration by the War Department. Measures designed to place trainees in medical schools best suited to their abilities and their possibilities for development, or to avoid assignment to particular environments for which the trainee appears unsuited, must necessarily be not only preferential but also prejudicial in character. They would also open the door to unlimited political pressure and universal dissatisfaction. No plan for individual selection and assignment appears feasible.

The transfer of medical trainees from one unit to another is not contemplated, except, of course, in the case of those who have successfully completed their instruction in the schools of the basic medical sciences. It is felt that such trainees may advantageously be transferred as individuals, and to this end it has been requested that arrangements now in force between the deans of the various approved schools of medicine be continued.

Negro enlisted men qualified for medical training will be assigned to fill vacancies reserved for the War Department at Howard University and Meharry Medical College.

The preceding paragraphs present a brief outline of the general plan of medical and premedical training under the Army Specialized Training Program. The adaptation of the general Army program to the existing scheme of medical education has necessitated modifications in War Department directives governing the selection and assignment of trainees and the academic curriculums and schedules under which the training of military personnel is conducted by individual institutions, other than schools of medicine, dentistry and veterinary medicine.

As previously stated, medical training under the Army Specialized Training Program consists of two distinct phases: a premedical phase of five terms of twelve weeks each with one week furlough between terms and a medical phase which conforms to the accelerated program of medical education adopted by the several schools on the recommendation of the Council on Medical Education and Hospitals of the American Medical Association and by the Association of American Medical Colleges.

THE CURRICULUM

No change is desired in the standard curriculum under which the individual medical school has been teaching medicine. However, in view of the wide variations in premedical curriculums it has been necessary to formulate one which will be followed in the colleges and universities in which Army trainees will be prepared for its logical sequel the study of medicine. Careful selection of the enlisted men who are to receive premedical instruction will reduce the enormous wastage which unfortunately has characterized collegiate preparation for the study of medicine.

Premedical training will conform to the daily, weekly and term schedule prescribed for all other Army Specialized Training. Preliminary basic military training, group housing and messing, military instruction, physical training and supervised study will assure that such trainees be and continue to be soldiers in fact, not in name only: soldiers in college, not students in uniform. The military aspect of the program, however, is secondary to the academic in the premedical as well as in the medical phase.

In the latter, for the time being, Army trainees will unfortunately be at a distinct disadvantage: they will have had little or no preliminary military instruction; they may fail to realize that they are soldiers, with all the responsibilities of a soldier as well as the prerogatives. Only in the exceptional cases in which facilities for group housing and messing are available at the individual institution will medical trainees live in dormitories. They will nevertheless be under careful military discipline and control. They are assigned to a definite unit and detailed to the study of medicine. The satisfactory pursuit and completion of such studies is their military duty, their contribution, at this time, to the successful prosecution of the war.

The prescribed military instruction of medical trainees has been reduced to that hitherto required in medical units of the Reserve Officers' Training Corps. Physical training is not mandatory. It is hoped, however, that satisfactory arrangements may be made at each school for their maintenance in creditable physical condition. This will certainly contribute to the academic progress of the trainee.

On graduation the trainee will be discharged from his enlisted status in order to accept a commission in the Medical Corps, Army of the United States. He will not, however, be ordered to active duty as an officer before the completion of twelve months hospital internship, on an inactive duty status. Arrangement for such internships must be made, as in previous years, by the individual trainee.

On completion of the internship the young officer will be ordered to active military duty. He has completed his specialized training; he is now ready and prepared for service.

THE UNITED STATES NAVY AND MEDICAL EDUCATION

Rear Admiral Ross T. McIntire
Surgeon General, U. S. Navy

The Navy V-12 Program as it relates to medical education went into operation on or shortly after July 1 in sixty-four approved medical schools throughout the nation. The medical schools have the important responsibility of offering medical education of the highest quality to the students assigned them and of helping these students put forth their best efforts so that the Navy and the country will have a continuous reservoir of outstanding medical officers to meet the needs of the service and of the civilian postwar period.

The ultimate goal of the medical phase of the Navy V-12 Program is to insure a constant flow of medical officers for the naval service, to give these prospective naval doctors the benefits of the very best medical education and, while doing this, to preserve the normal pattern of medical school life and to safeguard the scholastic integrity and identity of medical education. The medical schools are not asked or required to change their curriculums or methods of teaching and are not asked to lower their high standards. It is the Navy's responsibility to defray the cost of the student's education and the school's responsibility to give this education unhampered.

The students assigned to schools will have been found morally, physically and intellectually fit to enter medical education as the result of a previous thorough screening by the Navy in cooperation with the deans or their representatives. The Navy will accept the recommendation of the school for withdrawal of a student for scholastic failure, inaptitude or other sufficient reason.

It is believed that this program will not alter medical education or have a deleterious effect on the student and future doctor by way of softening him, robbing him of his initiative or destroying for him the satisfaction experienced by previous students in medical schools who obtained their education through their own endeavors.

The faculties of medical schools already depleted by many members having joined the armed forces will be heavily burdened with extra teaching responsibilities, owing to the accelerated teaching program and increased enrolments. It is hoped that they will be able to main-

tain the same degree of efficiency, vigor and cheerfulness of other years.

The Navy desires the schools to reserve at least 25 per cent of the enrolment of entering classes in each medical school for the Navy premedical students. The contract with medical schools provides for the payment of tuition, laboratory fees, rental of microscopes, other required equipment and the utilization of the existing Student Health Programs. Not more than one textbook in each subject in which a textbook has previously been required by the faculty of the school will be paid for by the Navy and assigned to each student. This textbook will remain the property of the student while he remains in medical school.

The Navy medical student is classified as an Apprentice Seaman, Class V-12(S), U. S. Naval Reserve, on active duty, receiving the pay and allowances of this rate; also a per diem allowance in lieu of subsistence and quarters. He will wear a uniform similar to the Midshipman's uniform with an appropriate insigne and thin gold stripes on his sleeve to designate his class. It is not intended that the student be required to take time away from his normal course of studies for military drills or indoctrination courses. Although in the other V-12 Educational Units physical training is compulsory, it will not be required of medical students. However, it is my fervent hope that the medical student will carry out a voluntary program of physical exercise, swimming and similar conditioning exercises as often as the opportunity presents, so that when he is assigned to active service as a doctor his physical tone will be comparable to that of the other officers and men with whom he will be serving.

A medical student is not prohibited from marrying while he is in attendance at medical school. If he fails to maintain satisfactory standards he will be assigned to other duty for which qualified. A senior medical student may accept externships if the externship is approved by the dean and is given credit by the school, and if the student receives no financial remuneration for it. The medical student will continue to seek an internship, as has been the practice in the past. He may either contract for civilian internship or make application for examination for appointment as Acting Assistant Surgeon for internship in the Medical Corps of the U. S. Navy. On satisfactory completion of his medical education he will be commissioned Lieutenant (junior grade) MC-V(G), U. S. Naval Reserve, and placed on inactive duty for the purpose of attending his internship or, if qualified and selected, will be appointed Acting Assistant Surgeon in the Medical Corps of the U. S. Navy and assigned to active duty in a U. S. naval hospital for his intern training. Internships will be of twelve months' duration.

As a result of the Navy's assumption of all the financial obligations for the student's medical education, the payment of a salary plus allowances, the provision of full medical care and hospitalization when sick, there should be fewer scholastic failures, an upsweep in scholastic attainments and a physically and emotionally healthier student. The type of military uniform worn by the medical student is in keeping with his scholastic seniority and the kind of education pursued. Being in uniform will protect the student from unwarranted criticism and help to combat and ameliorate the restless, unpleasant feeling that young men of this age group have experienced; that is, the impatience at not being more actively engaged in and directly identified with the armed services.

The medical student who, because of a physical handicap, has not been selected to participate in the Navy's Medical Educational Program, should not develop feelings of inferiority or have a feeling of not belonging to an organization, for he is being educated to serve in a medical capacity which is as important as that of his classmate in uniform.

I feel confident that the Navy's alliance with medical schools for the training of needed medical officers will be successfully accomplished in mutual cooperation and respect and concluded with great benefit to both.

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THE NAVY PREMEDICAL PROGRAM

Commander B. W. Hogan (MC)
Bureau of Medicine and Surgery; Navy College Training Program

The Navy V-12 Program, which became effective on July 1 with units established in one hundred and thirty-one colleges and universities and in approved medical and accredited dental schools throughout the nation, is designed to protect the source of officer candidates and to produce a continuous supply of officers for the several branches of naval service.

Undergraduate V-12 units, eighty-nine of which include quotas of premedical students, conform to certain general policies and regulations. The students live in college dormitories and fraternity houses, selected and approved by the Navy, eat together in Navy messes, follow curriculums prescribed in full or in part by the Bureau of Naval Personnel and, except for members of the N. R. O. T. C. and men enlisted in Marine Corps Reserve, Class III(d), are uniformed as apprentice seamen. All students in the V-12 Program, including medical and dental students, receive the pay and allowances of apprentice seamen on active duty.

The primary purpose of the Navy V-12 Program is education. Military discipline and procedures are kept to a minimum consistent with the successful operation of a naval activity, as most V-12 students will receive specialized naval training later while attending the indoctrination schools or in naval training schools. Hence the undergraduate phase of the V-12 Program, by preserving, so far as possible, the normal pattern of college life, protects premedical students in the early stages of their education, permitting them to pursue their studies without undue distraction.

There are approximately 6,500 Navy premedical students assigned to eighty-nine universities and colleges throughout the country. They are scattered through the various years of premedical education. The premedical students for the V-12 Program were selected with procedures similar to those used for other students. Students who entered the program on July 1 came from three sources:

1. The enlisted reserves constituted the first group. These were enrolled in the premedical curriculums in colleges and universities approved for the V-1 Program. The members of this group who were near the end of their fourth semester of work or who had com-

pleted four or more semesters were given a comprehensive achievement examination late in April. Students standing in the lowest 10 per cent of the distribution of scores on this examination were eliminated. The remaining students were permitted to continue with their premedical courses or to enter a medical school, provided they were accepted for admission.

2. The second group of students came from among the enlisted men in service. These students were selected on recommendation of their commanding officers, provided they had attained a specified minimum score on the General Classification Test.

Outline of Navy Premedical Curriculum

First College Year	Periods per Week 1st Term	2d Term
Chemistry I, II (C1,2)	4 (6)	4 (8)
Physics I, II (PH1,2)	4 (6)	4 (6)
Mathematical analysis I or III, II or IV (M1 or 3, 2 or 4)	5*(5)	5*(5)
Modern foreign language I-II (L1,2)	3 (3)	3 (3)
Naval organization I, II (N1,2)	1 (1)	1 (1)
	17 (21)	17 (23)
Physical Training	18 (9½)	17 (8½)
	35 (30½)	34 (31½)

* Mathematical Analysis I and II, combination course in mathematical analysis for students entering with 2 or less units of mathematics. Mathematical Analysis III and IV, algebra, trigonometry and analytic geometry or analytic geometry and calculus for students entering with 2½ or more units of mathematics.

Second College Year	Periods per Week 1st Term	2d Term
Chemistry III, quantitative analysis (C3)	4 (8)	.....
Organic chemistry I (C4)	.....	4 (8)
Biology I, II (B1,2)	4 (8)	4 (8)
Modern foreign language III-IV (L3-4)	3 (3)	3 (3)
English I-II (E1-2)	3 (3)	3 (3)
Historical background of present war I-II (H12)	2 (2)	2 (2)
Psychology I, general (PS1)	2 (2)	2 (2)
	18 (26)	18 (26)
Physical training	17 (8½)	17 (8½)
	35 (34½)	35 (34½)
Third College Year		
Biology III (embryology or Biology IV (comparative anatomy) (B3 or 4)	5 (9)	
Organic chemistry II (C5)	4 (8)	
Modern foreign language V or VI (L5 or 6)	3 (3)	
Psychology II, abnormal (PS2)	3 (3)	
Elective	3 (3)	
	18 (26)	
Physical training	17 (8½)	
	35 (34½)	

Figures in parenthesis indicate contact hours per week in class and laboratory. Figures outside parenthesis indicate the number of meetings per week in class and laboratory.

3. A third group of students were selected directly from civil life. These were chosen in terms of a rigid screening procedure which included (*a*) a scholastic aptitude test given at approximately eighteen thousand centers throughout the country, (*b*) a physical examination, (*c*) an interview by a naval officer in the Office of Naval Officer Procurement and (*d*) final selection by a committee of three, including a naval officer, a business man and an educator. This committee considered all the information available on each applicant. From those finally selected for the V-12 Program, only the highest ranking students with a preference for premedical training were admitted to the premedical curriculum.

Further screening of premedical students will be done on the basis of scholastic records and comprehensive achievement examinations. An achievement examination similar to that given late in April of this year will be given to other students from the V-12 group during the fourth term of work. Also students entering the prescribed premedical curriculum directly from civil life will be given an achievement examination near the end of their first two terms. Final selection of students for medical schools will be made in cooperation with the medical schools on the basis of these records. The details of this procedure are to be completed in the near future.

The premedical curriculum was worked out on the basis of past practices in colleges and universities and has the wholehearted approval of the Council on Medical Education and Hospitals and the Association of American Medical Colleges. It is generally believed that it represents the best type of premedical education that has been offered at colleges and universities. It extends over five terms of sixteen weeks each, a total of twenty months of premedical preparation. A detail outline of the curriculum is presented in the accompanying table. Course descriptions are given in detail in Bulletin No. 1 "The Navy College Training Program, V-12, Curricula Schedules," issued by the Training Division of the Bureau of Naval Personnel of the United States Navy, Washington, D. C.

The method of selecting the qualified premedical student for medical education and his assignment to a medical school is, as has been stated, not yet finally determined. The proposed plan is to assign students to medical schools within the naval district where they are at present pursuing premedical education. A committee of the deans or their representatives of the medical schools in a naval district would select from the premedical students in that district who are finishing their preprofessional training those who are qualified for admission to medical school. These successful students would then be assigned by the Navy Department to fill the Navy's quota in the medical schools of that district. There might be in some naval districts a surplus of well qualified premedical students, and in other naval districts there might not be a sufficient number to fill the Navy's quota in the medical schools of that district. In these instances it is the suggestion of the Navy that a reciprocity agreement be established between naval district screening boards in order to fill existing vacancies with Navy premedical students found qualified by screening boards in other areas.

Premedical students who have been accepted for admission to an approved medical school and have several months to wait before matriculating in medical school will be assigned to naval hospitals under instruction in the laboratory fields of medicine and in addition at certain hospitals they will assist the educational officer in the Navy's Hospital Educational Program for convalescent patients.

I am quite sure that, from the standpoint of both selection of students and the curriculum, the Navy Program will provide a very high grade type of doctor to serve in the Navy and later in civil life. Great care has been taken to insure the selection of only those men best qualified to study medicine, regardless of their economic status, and to give these men the best possible medical education.

THE UNITED STATES PUBLIC HEALTH SERVICE AND THE WAR

Thomas Parran, M.D.
Surgeon General, U. S. Public Health Service

The wide range of activities in the U. S. Public Health Service calls for a diversification of medical talent seldom encountered in a single organization. At the present time more than 1,800 physicians are employed full time in the Public Health Service. Almost as many hold commissions in the inactive reserve or are serving part time or on a consultant basis.

The legal functions of the service cover the three broad divisions of medicine, namely research, clinical practice and public health practice. During the war these activities have been greatly expanded and new tasks have fallen to the lot of Public Health Service physicians. In fact, 90 per cent of our manpower, material and money have been channeled into direct war work. Virtually all of the research has been turned to new problems arising from the conditions of global war. Many confidential studies have been undertaken at the request of other branches of the government. Tropical medicine, industrial toxicology, aviation medicine and nutrition have captured the interest of our physicians in the research arm of the service. The production of vaccines, blood plasma and other biologic products has expanded greatly.

In our hospitals nearly 80 per cent of the patients are members of the Merchant Marine, the Coast Guard, the Army and the Navy. The Public Health Service furnishes medical care for the entire personnel of the Coast Guard in the same way in which the Navy Medical Corps provides medical care for the personnel of the Navy. Coast Guard patients treated in our hospitals have more than doubled in number since Pearl Harbor. Medical care is now extended by law to the families of coast guardsmen.

An increasing number of women and children are applying for admission to the marine hospitals, principally dependents of coast guardsmen. The addition of this valuable experience has made possible the development of clinical research in our hospitals, and with dramatic results. In 1942 a method for relieving the pain of childbirth was developed by Drs. Hingson and Edwards, two of our young officers at the Marine Hospital, Stapleton, N. Y. Leaders in the medical profession consider this an outstanding contribution. Possibilities exist for the use of continuous caudal analgesia in surgical fields and are being explored. The originators of the method have demonstrated their technic at a number of medical schools.

In our cooperative program with the War Shipping Administration for medical care of trainees and members of the Merchant Marine we have expanded psychiatric work in the Public Health Service. Already an important field in our hospitals for the treatment of narcotic drug addicts, in the medical and psychiatric service of federal prisons and in St. Elizabeths Hospital, psychiatry is now being turned to the prevention and treatment of psychic effects of enemy attack on merchant seamen.

Public Health Service physicians are now on duty in practically every theater of war. Many are seeing actual combat as medical officers of the Coast Guard cutters. Others have been assigned to the Army in India and in the Southwest Pacific under the command of Generals Stilwell and MacArthur.

Another group of young physicians is doing a superb job under exceedingly arduous conditions. They are responsible for the medical care of 20,000 men who are constructing the Alaska Highway. Their patients are dispersed over a distance of 1,500 miles of virgin territory. As the highway has progressed northward they have had to move hospital supplies and equipment over great distances with inadequate transportation and in subarctic weather.

Other medical officers are serving with the United States Typhus Commission in Africa, with the Army in Panama in connection with venereal disease work and in Trinidad as members of the Anglo-American Commission.

Four of our doctors are in the first health expeditionary force to enter a foreign country after the reoccupation of Axis held territory. Assigned to the Office of Foreign Relief and Rehabilitation, they are in Africa and are working with local public health authorities and physicians to assure adequate medical supplies, allot food to combat widespread nutritional diseases among the native population and to improve native sanitation, malaria and typhus control for the protection of American troops in the area. The Office of Foreign Relief and Rehabilitation has requested the service to undertake the recruitment and training of the medical and sanitary personnel who will be needed as this important work expands to other war areas.

At the request of the Army a number of additional officers have attended the course in military government at the University of Virginia, and those who have completed the training are now on active duty.

For now and for the future, I would recommend to the medical student that he devote as much time and effort as possible to the study of public health methods and administrative medicine. In the past there has been scant attention to these subjects in our undergraduate schools. Yet their importance both in this country and in our international relationships is apparent. The day is rapidly passing when the training of public health physicians by the trial and error method of "experience" will suffice. Already postgraduate training in public health is being required of young physicians who have no compensating experience as a qualification for employment in state and local agencies.

The emergency made it necessary for the Public Health Service to recruit hundreds of physicians for assignment to public health positions in the states. To compensate, at least to some degree, for deficiencies in public health training, as well as to inculcate new employees in the policies and procedures of the Public Health Service, an orientation course was developed. Recruits were assigned to the course for the first six weeks of their employment. Lectures by experts in various fields, seminars, problem solving and field practice under supervision of a state health department were the methods utilized in the intensive training of physicians, many of whom were soon to be "on their own" in war communities which had never had a public health service before.

Within the total field of public health practice, two other specialties are expanding with amazing speed under the pressure of war. These are industrial hygiene and nutrition.

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In 1942 the chairman of the Council on Industrial Health of the American Medical Association stated that teaching in this field is inadequate in most of our medical schools. He pointed out that, ironically enough, the Woman's Medical College of Pennsylvania devotes more time to the subject than any other school. Medical students and interns should certainly obtain a sufficient grounding in industrial medicine to recognize the possibilities in the field.

The United Nations Conference on Food and Agriculture, held at Hot Springs, Va., May 18 to June 8, 1943, placed an important responsibility on public health and medicine in seeking the national and worldwide goal of better nutrition. The conference recognized that at all stages of a nutrition program, from the recognition of malnutrition in a community to its elimination, knowledge of the human body is essential. Because they possess and can contribute this knowledge, physicians have a primary responsibility in the development and application of a nutrition policy. The medical student can look forward to making an even more significant contribution through the study of human nutrition. Modern nutrition—already one of the scientific miracles of our time—is a dynamic science on the threshold of fresh discoveries. It offers the student a rich field for exploration and practice.

In the past, war with all its destruction has been a catalyzer in the progress of medicine, surgery and public health. Already important changes are being reported in military medicine. On the public health front, advances are being made. We are gaining new knowledge, devising new methods and new approaches. Our attacks on malaria, tuberculosis and venereal diseases have been sharpened by the development of new weapons. Today, in the protection of our armed forces and the civilian populations, and tomorrow, in the reconstruction to peace, the public health physician is an essential man whose knowledge and skill serve his country through constructive teamwork with the military surgeon and the private practitioner.

THE PROCUREMENT AND ASSIGNMENT SERVICE—CURRENT POLICIES

Harold S. Diehl, M.D.
Member, Directing Board
MINNEAPOLIS

The basic policy of the Procurement and Assignment Service relative to medical education remains unchanged from that enunciated in earlier issues of THE JOURNAL.[1] This is "to retain adequate teaching staffs for the medical schools, but to do so without withholding from military service more than a minimum number of men who are physically qualified for such service."

In the application of this policy, however, certain modifications of points of view and criteria of essentiality are inevitable as a result both of increases in the size and the activity of the armed forces and the depletions in teaching staffs combined with increased teaching loads in the medical schools.

The assumption of the offensive by our armed forces requires the services of far more young medical officers than are now available. At the same time critical shortages of medical services exist in certain war industries and civilian communities. These conditions demand that medical schools, hospitals and other agencies which utilize the services of physicians again review their staffs and release as many young physicians as possible for duty with the armed forces or to meet critical civilian needs.

Both the Army and the Navy report a dangerous shortage of young medical officers. In time of war the needs of these services must be given first priority. Unless the war is won, the maintenance of civilian institutions will be futile; and unless the boys who are fighting the war are supplied with adequate medical care, lives will be unnecessarily lost and the prosecution of the war handicapped. This situation requires that medical schools and hospitals declare immediately available all physicians whose services are not absolutely essential and all who can be replaced by physicians who are ineligible for military service.

It is reported that some institutions have made little or no reduction in their staffs because many physicians ineligible for military service are available to them. This is obviously an unjustifiable position when certain war industries and civilian communities and even other hospitals are seriously short of physicians. Any institution which retains on its staff more physicians than are absolutely necessary is guilty of hoarding and is prejudicing the war effort and the national welfare.

On the other hand, medical schools have an equally great, or even greater, responsibility to maintain effective instructional programs for the students who are being trained as the physicians of the future. With the condensation of the medical course into three calendar years, with increases in the number of students and with depletions of teaching staffs, this is no easy assignment. Yet to fail to meet this responsibility would mean inadequately trained and incompetent physicians for both the armed forces and the civilian population. This would be a major tragedy. Medical schools are now engaged in war production and the product must not be defective. Incompetent medical officers are a hazard and liability just as are defective planes, tanks or guns.

INTERNSHIPS

The maintenance of twelve month internships with students graduating from medical schools at nine month intervals has resulted in an overlap of three months in the services of interns. Reports from many hospitals indicate that it is frequently an impossibility to utilize the services of interns effectively during this three month period. The result is unsatisfactory intern training and waste of medical manpower, neither of which can we afford at this time. Possibilities of adjustments in the internships are being studied by various groups with a view to the elimination of the unsatisfactory features of the present program.

RESIDENCIES

According to the policy of the Army, the Navy, Selective Service and the Procurement and Assignment Service, the deferment of hospital residents is justified only if they are essential for the adequate care of hospital patients or for the clinical instruction of undergraduate medical students.

1. J. A. M. A. **119**: 1262 (Aug. 15) 1942, **121**: 635 (Feb. 27) 1943.

The Procurement and Assignment Service is keenly aware of the necessity of providing essential medical services in hospitals and is doing everything within its power to accomplish this. On the other hand, residents are physicians in the age group most urgently needed by the Army and the Navy. As such those who are physically qualified have an obligation to go into service after a year of internship unless they are needed to fill essential hospital positions for which it is impossible to secure residents who are ineligible for military service.

Approximately six months ago hospitals were requested not to appoint as residents physicians who have failed to make bona fide applications for commissions. In order to provide for essential hospital services the Army and the Navy have granted a year's deferment of active military duty to certain residents who hold commissions and who have been recommended for deferment by the Procurement and Assignment Service. Some requests were denied because they were received too late and some because they did not seem to meet the conditions for deferment as set forth in the Procurement and Assignment Service memorandum on this subject.

Residents who do not hold commissions or who have not been officially rejected for commissions should be urged to apply for commissions at once and should not be appointed unless they do so. The Surgeon Generals of the Army and Navy have assured the Procurement and Assignment Service that they will grant deferment of active duty until completion of the year of residency for residents who are granted commissions and whose applications for commissions are accompanied by Procurement and Assignment form 218, recommending that they be granted deferment as essential hospital residents.

There is evidence that some physically fit young physicians are avoiding military service by offering their services to hospitals as residents on condition that hospitals recommend deferment to Selective Service for them. If hospitals are parties to such practices, it may become impossible to secure deferment for residents who really should be deferred.

SUMMARY

The difficulties of maintaining effective medical schools and hospitals are becoming increasingly acute. To meet these problems it is essential that deans of medical schools, superintendents of hospitals and officials of the Procurement and Assignment Service be aware of the many urgent needs for physicians and assume a public spirited and statesmanlike attitude in passing on the availability or essentiality of individual members of medical school and hospital staffs. Only if this is done can the limited and dwindling supply of physicians be utilized effectively for the prosecution of the war and the safeguarding of the national welfare.

FORTY-THIRD ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Victor Johnson, M.D., Secretary

In this annual compilation of data on medical education, the Council includes the latest information available on the relationships of medical education to the war in the preceding statements from military and other government officials. The collaboration between the armed services, government agencies and institutions concerned with medical education must become even more intimate in the months ahead than it has been in the past. Successful solution of the complex problems of providing medical officers and civilian physicians in large numbers and in a relatively short period of time, consistent with a high quality of training, can come only through a continuation and expansion of the present excellent cooperation between the agencies involved.

This presentation also includes data on the military status of students, now undergoing a change, developments under the accelerated program, including the staggered admission and graduation dates, and an account of faculty participation in war activities. In addition there are data on enrolments, graduates, premedical education, licensure, internships, fees, continuation courses and specialty boards. Medical schools are described and recent educational developments discussed.

Reduced in volume through restrictions on the use of paper, the Educational Number of THE JOURNAL still provides essential material of great value to military and government agencies, the medical profession, medical educators, hospital officials, students, interns, residents and those concerned with specialty certification and graduate and postgraduate medical education. Reprints of the entire study as well as copies of the lists of hospitals are available and are widely distributed.

The Council and THE JOURNAL express thanks and appreciation to the military officials, the officers of the institutions mentioned and others for their cordial cooperation in supplying the material submitted in this presentation and for other records furnished throughout the year to the office of the Council and the members of its staff on inspection or visitation, enabling the Council to maintain its medical student and hospital registers efficiently and to carry on its activities as outlined by the House of Delegates of the American Medical Association and to serve the profession.

SOLDIERS AND SAILORS IN MEDICAL SCHOOLS

In close cooperation with the Army and the Navy, the medical schools of America have zealously assumed a major wartime responsibility: the training of adequate replacements of medical officers for the armed forces. In June of this year nearly 15,000 medical students held army commissions in the Medical Administrative Corps and about 5,000 held ensign commissions in the Hospital Volunteers (Probation) of the Navy (see table 1 for distribution by schools). Only one school was without Army students and only three without Navy enrolments. This total number of nearly 20,000 medical students earmarked for military service represented nearly 87 per cent of the medical students in America, with approximately 65 per cent having Army affiliations and approximately 22 per cent having Navy affiliations.

The transfer of most of these students from the inactive commissioned status to the active status as privates and apprentice seamen is now being completed. In the active status they will be soldiers and sailors in school, not students in uniform. Data on the numbers actually in uniform are not yet available, since the processing of students is still progressing.

All Navy students are on commutation of rations and quarters. Of sixty-nine schools which have completed arrangements with the Army, in only nine are all

students housed in barracks and fed at common mess. Common housing and messing would seem to be educationally undesirable in most instances. Especially students in clinical work must of necessity follow an irregular program of meals and sleep. Such men are essentially student-physicians, responsible for sick patients, whose hours of work are dictated by the unpredictable course of the illness of the patients assigned them. Although such considerations are less applicable to students in the basic sciences, it is true nonetheless that much of the value of an experiment may be lost if a student is prevented from following an experiment to an inadvertently delayed conclusion by fixed times for meals. Taps at a regular hour may seriously interfere with study. It is gratifying that so small a proportion of medical students are subject to common housing and mess.

In conformity with orders from Army and Navy authorities, it seems apparent that drill and purely military instruction are sufficiently subordinated to the regular curriculum in most schools to present no interference with the chief responsibility of the medical school: providing the prospective medical officer with the best in medical training. In only a few schools do such nonmedical activities involve as much as five or six hours a week, although in one school it totals ten hours a week.

TABLE 1.—*Students Enrolled in Army or Navy Units on an Inactive Status in June 1943*

Figures are incomplete in some instances, because of pending applications for commissions. Many groups listed in this compilation have now been transferred to the active status and are in uniform as privates or apprentice seamen.

	Army	Navy
University of Alabama	63	33
University of Arkansas	171	64
University of California	161	70
College of Medical Evangelists	158	17
University of Southern California	173	56
Stanford University	105	102
University of Colorado	134	48
Yale University (Connecticut)	131	58
Georgetown University (District of Columbia)	229	67
George Washington University	190	73
Howard University	119	9
Emory University (Georgia)	157	75
University of Georgia	147	56
Loyola University (Illinois)	199	82
Northwestern University	358	136
University of Chicago, The School of Medicine	138	96
University of Illinois	425	150
Indiana University	428	44
State University of Iowa	209	71
University of Kansas	198	90
University of Louisville (Kentucky)	204	79
Louisiana State University	315	79
Tulane University of Louisiana	266	190
Johns Hopkins University (Maryland)	182	58
University of Maryland	255	58
Boston University (Massachusetts)	166	44
Harvard Medical School	343	151
Tufts College Medical School	244	129
University of Michigan	198	65
Wayne University	178	42
University of Minnesota	351	94
University of Mississippi	27	23
University of Missouri	68	7
St. Louis University	266	86
Washington University	273	78
Creighton University (Nebraska)	176	63
University of Nebraska	242	68
Dartmouth Medical School (New Hampshire)	15	35
Albany Medical College (New York)	100	41
Long Island College of Medicine	297	52
University of Buffalo	217	34
Columbia University	310	119
Cornell University	214	90
New York Medical College	225	75
New York University	397	86
University of Rochester	105	98
Syracuse University	122	54
University of North Carolina	55	29
Duke University	155	106
Bowman Gray School of Medicine	100	46
University of North Dakota	42	9
University of Cincinnati (Ohio)	220	69
Western Reserve University	253	48
Ohio State University	237	26
University of Oklahoma	160	62
University of Oregon	43	44
Hahnemann Medical College (Pennsylvania)	354	94
Jefferson Medical College	378	107
Temple University	265	117
University of Pennsylvania	348	124
Woman's Medical College	...	...
University of Pittsburgh	262	48
Medical College of South Carolina	115	47
University of South Dakota	29	12
University of Tennessee	277	72
Meharry Medical College	212	9
Vanderbilt University	174	19
Baylor University (Texas)	141	37
University of Texas	193	104
University of Utah	76	35
University of Vermont	128	3
University of Virginia	154	87
Medical College of Virginia	188	75
West Virginia University	34	18
University of Wisconsin	150	71
Marquette University	215	112
Totals	14,644	4,989

THE ACCELERATED PROGRAM

Realizing the greatly expanding needs for medical officers and the continuing demand for civilian doctors —even anticipating such needs—many of the medical schools of the country increased their enrolments and adopted an accelerated curriculum even before Pearl Harbor. At present virtually all medical schools in the United States (including schools of basic medical sciences) are on the accelerated program, admitting a new class approximately every nine months and condensing the traditional four academic years of the medical curriculum into three calendar years by eliminating summer vacations, without a reduction in total classroom, laboratory or clinic hours. The only exceptions to this are the University of Michigan Medical School, which is on the full accelerated program but admits new freshman students once a year, the Woman's Medical College of Pennsylvania, which is on an accelerated program for the junior and senior years only and admits new first year students once a year, the University of Tennessee College of Medicine, which is on a full accelerated program and admits students approximately every three months, and the schools of basic medical sciences, all of which are accelerating in that work which is offered and are admitting new students approximately every nine months.

Details of dates of admission and dates of graduation for the recognized four year schools are included in table 2. Admission dates for the schools of basic medical sciences follow in table 3. Of the latter schools two have developed four year programs: Bowman Gray now has junior and senior classes in operation, and Utah has a junior class in session. It is noted that throughout the country new freshman classes will enter one or more medical schools during every month from September 1943 to January 1945 with the sole exception of the month of December 1944 (see table 4). Dates of graduation will also be staggered throughout these months. Table 4 includes estimates of numbers of graduates to January 1945. Most students will graduate in the months of December 1943 and September 1944, although some students will complete their work and be available for internships in every month of this period with the exception of the months of September 1943, May and November 1944 and January 1945.

LICENSURE UNDER THE ACCELERATED PROGRAM

All states in the Union as well as the District of Columbia, Alaska, Hawaii and Puerto Rico have now adjusted their licensure legislation or practices, where such adjustments were required, so that graduates under the accelerated medical program will be eligible

TABLE 2.—*Admission and Graduation Calendars of Medical Schools in the United States*

School	Present Freshmen Session Began (1942)	Dates of Next Two Entering Classes		Dates of Next Two Graduating Classes [1]	
ARKANSAS					
University of Arkansas School of Medicine	July 1	April 3, 1944	Jan. 2, 1945	March 27, 1944	Dec. 1944
CALIFORNIA					
University of California Medical School	Feb. 11	Oct. 28, 1943	June 29, 1944	Oct. 23, 1943	June 1944
College of Medical Evangelists	July 1	April 1944	Jan. 1945	Dec. 19, 1943	Oct. 1944
University of Southern California School of Medicine	June 28	Feb. 21, 1944	Nov. 6, 1944	Oct. 15, 1943	June 16, 1944
Stanford University School of Medicine	June 28	April 12, 1944	Jan. 8, 1945	Dec. 1943	Sept. 1944
COLORADO					
University of Colorado School of Medicine	March 29	Jan. 3, 1944	Oct. 2, 1944	Dec. 24, 1943	Sept. 23, 1944
CONNECTICUT					
Yale University School of Medicine	April 5	Dec. 27, 1943	Sept. 25, 1944	Dec. 18, 1943	Sept. 16, 1944
DISTRICT OF COLUMBIA					
Georgetown University School of Medicine	March 15	Jan. 3, 1944	Oct. 1, 1944	Dec. 15, 1943	Oct. 1, 1944
George Washington University School of Medicine	March 1	Nov. 22, 1943	Sept. 1944	Nov. 10, 1943	Aug. 1944
Howard University College of Medicine	June 14	March 25, 1944	Jan. 3, 1945	March 1944	Dec. 1944
GEORGIA					
Emory University School of Medicine	March 23	Jan. 3, 1944	Oct. 1944	Dec. 1943	Sept. 1944
University of Georgia School of Medicine	April 7	Jan. 3, 1944	Sept. 27, 1944	Dec. 20, 1943	Sept. 1944
ILLINOIS					
Loyola University School of Medicine	April 19	Jan. 3, 1944	Oct. 1944	Dec. 18, 1943	Sept. 1944
Northwestern University Medical School	March 29	Dec. 28, 1943	Sept. 25, 1944	[2]	[2]
University of Chicago, The School of Medicine	March 29	Jan. 2, 1944	Oct. 1, 1944	[3]	[3]
University of Illinois College of Medicine	June 28	April 12, 1944	Jan. 8, 1945	Dec. 1943	Sept. 1944
INDIANA					
Indiana University School of Medicine	Jan. 7	Sept. 4, 1943	May 1944	Aug. 22, 1943	April 1944
IOWA					
State University of Iowa College of Medicine	March 1	Jan. 3, 1944	Oct. 1944	Dec. 22, 1943	Sept. 1944
KANSAS					
University of Kansas School of Medicine	May 24	March 1, 1944	Nov. 1, 1944	Jan. 27, 1944	Oct. 1944
KENTUCKY					
University of Louisville School of Medicine	April 1	Jan. 5, 1944	Sept. 27, 1944	Nov. 13, 1943	Sept. 2, 1944
LOUISIANA					
Louisiana State University School of Medicine	March 11	Jan. 1944	Oct. 1944	Dec. 1943	Sept. 1944
Tulane University of Louisiana School of Medicine	July 1	March 1, 1944	Nov. 1, 1944	Feb. 12, 1944	Oct. 1944
MARYLAND					
Johns Hopkins University School of Medicine	March 1	Nov. 29, 1943	Sept. 5, 1944	Nov. 25, 1943	July 27, 1944
University of Maryland School of Medicine and Coll. of P. and S.	April 8	Jan. 13, 1944	Oct. 17, 1944	Dec. 23, 1943	Sept. 29, 1944
MASSACHUSETTS					
Boston University School of Medicine	March 31	Dec. 31, 1943	Sept. 1944	Dec. 23, 1943	Sept. 1944
Harvard Medical School	March 8	Jan. 3, 1944	Oct. 1944	Dec. 1943	Oct. 1944
Tufts College Medical School	April 7	Jan. 1944	Oct. 1944	Dec. 1943	Sept. 1944
MICHIGAN					
University of Michigan Medical School	Oct. 25	Oct. 1944	Oct. 1945	Oct. 1943	June 1944
Wayne University College of Medicine	April 5	Jan. 10, 1944	Oct. 1944	Dec. 9, 1943	Sept. 1944
MINNESOTA					
University of Minnesota Medical School	March 29	Jan. 4, 1944	Sept. 1944	Dec. 16, 1943	Sept. 1944
MISSOURI					
St. Louis University School of Medicine	Feb. 23	Nov. 29, 1943	Aug. 1944	Nov. 20, 1943	Aug. 1944
Washington University School of Medicine	March 29	Jan. 3, 1944	Oct. 2, 1944	Dec. 1943	Sept. 1944
NEBRASKA					
Creighton University School of Medicine	March 18	Jan. 4, 1944	Sept. 1944	Dec. 20, 1943	Sept. 1944
University of Nebraska College of Medicine	March 30	Jan. 3, 1944	Oct. 2, 1944	Dec. 18, 1943	Sept. 23, 1944
NEW YORK					
Albany Medical College	March 29	Jan. 3, 1944	Oct. 2, 1944	Dec. 1943	Sept. 1944
Long Island College of Medicine	March 29	Jan. 3, 1944	Oct. 1944	Dec. 30, 1943	Sept. 1944
University of Buffalo School of Medicine	July 6	April 3, 1944	Jan. 2, 1945	Dec. 1943	Sept. 1944
Columbia University College of Physicians and Surgeons	March 22	Jan. 1, 1944	Oct. 1944	Dec. 1943	Sept. 1944
Cornell University Medical College	April 5	Jan. 3, 1944	Sept. 28, 1944	Dec. 23, 1943	Sept. 1944
New York Medical College, Flower & Fifth Avenue Hospitals	March 29	Jan. 3, 1944	Sept. 25, 1944	Dec. 20, 1943	Sept. 16, 1944
New York University College of Medicine	April 5	Jan. 3, 1944	Oct. 1944	Dec. 1943	Sept. 1944
University of Rochester School of Medicine	March 29	Jan. 3, 1944	Sept. 29, 1944	Dec. 18, 1943	Sept. 23, 1944
Syracuse University College of Medicine	July 1	April 1944	Jan. 1945	Dec. 1943	Sept. 1944
NORTH CAROLINA					
Duke University School of Medicine	April 1	Jan. 3, 1944	Sept. 29, 1944	Dec. 22, 1943	Sept. 25, 1944
OHIO					
University of Cincinnati College of Medicine	March 22	Dec. 1943	Sept. 1944	Dec. 1943	Sept. 1944
Western Reserve University School of Medicine	March 1	Nov. 22, 1943	Aug. 14, 1944	Oct. 28, 1943	July 28, 1944
Ohio State University College of Medicine	March 30	Jan. 4, 1944	Oct. 3, 1944	Dec. 19, 1943	Sept. 11, 1944
OKLAHOMA					
University of Oklahoma School of Medicine	May 10	Jan. 6, 1944	Sept. 1944	Dec. 23, 1943	Aug. or Sept. 1944
OREGON					
University of Oregon Medical School	March 29	Jan. 3, 1944	Oct. 6, 1944	Dec. 22, 1943	Sept. 1, 1944
PENNSYLVANIA					
Hahnemann Medical College and Hospital of Philadelphia	April 5	Jan. 3, 1944	Sept. 25, 1944	Dec. 23, 1943	Sept. 4, 1944
Jefferson Medical College of Philadelphia	April 12	Jan. 10, 1944	Oct. 1944	Jan. 7, 1944	Sept. 14, 1944
Temple University School of Medicine	April 1	Jan. 3, 1944	Oct. 2, 1944	Dec. 16, 1943	Sept. 15, 1944
University of Pennsylvania School of Medicine	April 5	Jan. 3, 1944	Oct. 2, 1944	Dec. 22, 1943	July 1944
Woman's Medical College of Pennsylvania	Aug. 30	Sept. 1, 1944	Sept. 1, 1945	March 16, 1944	Dec. 1944
University of Pittsburgh School of Medicine	April 5	Jan. 3, 1944	Oct. 2, 1944	Dec. 1943	Sept. 1944
SOUTH CAROLINA					
Medical College of the State of South Carolina	March 29	Jan. 3, 1944	Sept. 1944	Dec. 22, 1943	Sept. 1944
TENNESSEE					
University of Tennessee College of Medicine	July 8	Sept. 25, 1943	Jan. 3, 1944	[3]	[3]
Meharry Medical College	June 14	March 1944	Jan. 1945	March 25, 1944	Dec. 1944
Vanderbilt University School of Medicine	March 24	Jan. 1944	Sept. 1944	Dec. 1943	Aug. or Sept. 1944
TEXAS					
Baylor University College of Medicine	July 12	April 3, 1944	Jan. 2, 1945	March 13, 1944	Dec. 18, 1944
University of Texas Medical Branch	March 15	Nov. 1, 1943	July 1, 1944	July 31, 1943	June, 1944
VERMONT					
University of Vermont College of Medicine	April 12	Jan. 3, 1944	Oct. 1944	Dec. 21, 1943	Sept. 1944
VIRGINIA					
University of Virginia Department of Medicine	March 29	Dec. 28, 1943	Sept. 25, 1944	Dec. 16, 1943	Sept. 15, 1944
Medical College of Virginia	April 5	Dec. 30, 1943	Sept. 1944	Dec. 18, 1943	Sept. 1944
WISCONSIN					
University of Wisconsin Medical School	July 1	April 1944	Jan. 1945	Nov. 1943	Sept. 1944
Marquette University School of Medicine	March 1	Nov. 1943	July 1944	Nov. 1, 1943	June 1944

1. Or completion of senior year.
2. August and December 1943; March, June, August and December 1944.
3. September and December 1943; March, June 1944.

for admission to licensure, at least for the duration of the emergency. In Georgia no legislation has been introduced as yet. However, licensure difficulties in that state will not occur, according to a ruling of the Attorney General.

With the introduction of the Army and Navy premedical programs the question arises of licensure legislation as it applies to the preliminary training of students admitted to medical schools. Present legislation in all states of the Union, the District of Columbia, Alaska, Hawaii and Puerto Rico makes it possible for students with two years of premedical training to become eligible for admission to licensure on completion of the medical curriculum. In general two academic premedical years have sufficed, even though this work may have been completed in less than two calendar years, by student attendance at summer sessions or by carrying more than the normal load of academic work per term or both. The Army Specialized Training Program for premedical studies calls for a total of fifteen calendar months of work, and the Navy V-12 program for premedical students provides for eighteen calendar months of training. In both of these programs the work is essentially continuous, without the long summer vacation, and provides for the student carrying more than the normal peacetime load of work per term. Both the Army and Navy programs provide for work well in excess of the sixty semester hours constituting the normal two academic years of premedical work required for licensure. Therefore it would seem that the Army and Navy premedical programs should offer no licensure difficulties.

It would also appear probable that requirements in specific premedical licensure fields, such as chemistry, biology and physics, will probably be adequately met by the Army and Navy programs.

In the past state licensing boards have accepted the statement of the dean of the medical school from which the applicant graduated which certified his premedical training. Presumably this practice will continue.

TABLE 3.—*Admission Calendars of Schools of Basic Medical Sciences in the United States*

School	Present Freshmen Session Began (1943)	Dates of the Next Two Entering Classes for Freshmen	
ALABAMA			
Univ. of Alabama School of Med...	March 11	Dec. 6, 1943	Sept. 11, 1944
MISSISSIPPI			
Univ. of Mississippi School of Med.	Feb. 1	Sept. 27, 1943	June 1944
MISSOURI			
Univ. of Missouri School of Med..	March 22	Dec. 18, 1943	Sept. 1944
NEW HAMPSHIRE			
Dartmouth Medical School.....	Feb. 7	Oct. 31, 1943	July 1, 1944
NORTH CAROLINA			
University of North Carolina School of Medicine.....	March 22	Dec. 1943	Sept. 1944
Bowman Gray School of Medicine of Wake Forest College[1].....	March 22	Jan. 3, 1944	Sept. 27, 1944
NORTH DAKOTA			
University of North Dakota School of Medicine	June 14	March 27, 1944	Jan. 2, 1945
SOUTH DAKOTA			
University of South Dakota School of Medical Science.....	March 8	Dec. 6, 1943	Sept. 12, 1944
UTAH			
Univ. of Utah School of Med.[2]...	March 20	Dec. 1943	Sept. 1944
WEST VIRGINIA			
West Virginia Univ. School of Med.	March 22	Dec. 27, 1943	Sept. 27, 1944

1. Now operating full four years; classes graduate Dec. 21, 1943 and Sept. 25, 1944.
2. Now operating clinical program; first class graduates August 1944.

PREMEDICAL EDUCATION

The Army and Navy premedical programs fully satisfy the minimum requirements for admission to an approved medical school as these have been formulated by the Council on Medical Education and Hospitals, as regards both total work and coverage of specific subjects. Heretofore most medical schools have required more than two academic years of premedical training for admission. In the academic year 1941-1942, only eight schools required but two years of premedical work, and in that year only 1.2 per cent of all freshmen entering medical schools in the United States had this minimum training.

However, all medical schools at the present time have decided that the completion of the Army or Navy premedical curriculum will fully meet their minimum admission requirements, in the cases of students in active service who have been assigned to the Army Specialized Training Program or V-12 premedical programs.

While recognizing the adequacy of the Army and Navy premedical programs for the admission of men in active military service, most schools desire also to publish admission requirements in terms of academic years or semester hours for civilian applicants. In tables 5 and 6 the present civilian premedical requirements are shown for each medical school in the United States and Canada. A degree is required by two schools, three years of work by twenty schools and a variable amount of work in excess of two years by five schools. The remaining fifty-nine schools require two preclinical years or less, even for civilian students applying for admission.

THE SUPPLY OF PHYSICIANS

The accelerated program and enrolment increases are now producing excellently trained medical graduates for military and civilian needs in numbers far exceeding the production of doctors at any time in the history of this country. In figure 1 is plotted the number of medical graduates since 1905 including the estimated number of graduates in 1943 and 1944. Developments of far reaching importance in medical education in the United States, all pertinent to the present war effort, may be read from these data.

In 1905 the one hundred and sixty medical schools produced 5,606 graduates. There followed a decrease in graduates parallel with the decrease in schools, result-

TABLE 4.—*Distribution of Admission Dates by Schools and Estimated Number of Graduates for the Months of July 1943 Through January 1945, in the United States; Schools of Basic Medical Sciences Are Not Included*

Date	Number of Schools Admitting New Freshmen Classes	Estimated Number of Graduates From All Schools
1943		
July	9	86
August	0	125
September	2	0
October	1	208
November	6	502
December	6	3,751
1944		
January	57	230
February	1	121
March	4	327
April	8	122
May	1	0
June	1	421
July	3	252
August	2	176
September	71	3,580
October	25	460
November	3	0
December	0	389
1945		
January	10	0
Total		10,589

ing from the closure of many proprietary schools and the enforcement of educational standards.

Despite the reduced number of schools in recent years there has been a sustained increase in graduates, with a transient decrease in the years following 1939 resulting in part from the survey of medical schools conducted by the Council on Medical Education and Hospitals during 1934-1936.

Before the results of the accelerated program were manifest in 1942 there were essentially as many graduates from seventy-seven approved schools maintaining high standards of medical training as there were thirty-five or forty years ago, when over twice the present number of medical schools operated, mainly without control over enrolments or standards.

In the years 1943 and 1944 the number of graduates will far exceed the number at any time in the past history of this country. This wartime high may be contrasted with the all time low in medical graduates in

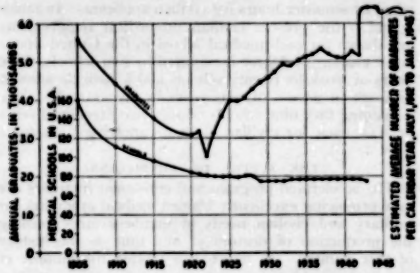

Figure 1. Numbers of medical schools and medical graduates in the United States, 1905-1942, and estimated for 1942-1945.

1922, which also resulted from war: the low enrolment of freshman medical students in wartime 1918.

Further data on the estimated future supply of physicians will be found under "Graduates" on p. 1102.

FACULTY MEMBERS IN WAR SERVICES

The accelerated program, increases in enrolment and decreases in resident personnel, have considerably increased the demands on medical school faculties. These demands are being met by faculties seriously depleted in numbers. On July 1, 1943 the seventy-six medical schools and schools of basic medical sciences in the United States had contributed a total of 5,637 of its faculty members to the armed forces.[1] This number is far in excess of the number of faculty members reported to be in active military service on July 1, 1942.[2] Although the figure 5,637 includes some men who are not physicians, it seems probable that more than 10 per cent of the medical officers in the armed forces (estimated at more than 47,000) have come from our faculties of medicine, which include in the neighborhood of 10 per cent of the physicians of the country. The interpretation and evaluation of these data are difficult, since many if not most of the teachers in active service were on a part time basis, in some instances contributing only an hour or two per week to instruction. Yet it is apparent that medical schools seem to have contributed approximately as large a proportion of their faculty members to the armed forces as the proportion of physicians not engaged in academic work who have been commissioned.

Further depletion of faculties has resulted from participation in war research. In twenty-one of the seventy-six medical schools there are 130 faculty members engaged in full time war research. This relatively small figure represents serious losses in teaching staff in some critical areas, since practically all these men were recruited from the full time faculty members mainly in the basic sciences. Furthermore, this figure includes only those on full time war research. The total loss in teaching manpower is much greater, since even larger numbers of teachers are devoting a considerable part, but not all, of their time to war research.

DEVELOPMENTS IN MEDICAL EDUCATION

The most noteworthy educational developments of the past year relate to the war and include the changes in premedical education, the transfer of students to an active military status, the adoption of the accelerated program by still more schools, and other wartime developments discussed in the earlier sections of this presentation.

Practically all schools report that, while the basic medical curriculum remains essentially unchanged, subjects of war significance are being stressed or have been added. The most commonly mentioned subjects in this category are Tropical Medicine and Parasitology, First Aid, Shock and Blood Substitutes, Burns and War Wounds, Venereal Diseases, Aviation Physiology and Medicine, Industrial Medicine and Public Health, Chemical Warfare, Military Medicine, Chemotherapy.

Two generalizations may be made from scanning this list: First, the subjects are not limited to clinical topics of a purely "practical" nature but involve as well material of basic scientific importance. Second, many of these subjects will continue to be of great medical importance after the war, so that these wartime additions to the curriculum are not simply necessary educational concessions to an emergency but will probably continue to justify their inclusion in our educational programs after the war.

Great impetus to the teaching of Tropical Medicine was given by grants from the John and Mary R. Markle Foundation, administered by a committee of the Association of American Medical Colleges, for the training of teachers of Tropical Medicine at the Army Medical School in Washington and Tulane University. Intensive courses of two months each are given at each school. Men from many of the medical schools have taken these courses and are in charge of the teaching of Tropical Medicine in their own schools.

The Baylor University College of Medicine has moved its entire equipment, including laboratory desks, microscopes, instruments, museums and library, from Dallas to Houston. Preclinical laboratories and class rooms have been established in a spacious, well lighted building which will be utilized for these purposes during the war. Clinical work will be carried out at the Jefferson Davis (City-County) Hospital and the Hermann Hospital. Generous grants have been made the school by the M. D. Anderson Foundation and the Houston Chamber of Commerce, to finance operations during the war and to construct buildings adjacent to Hermann Hospital to house the preclinical departments after the war. Dr. Walter H. Moursund continues as

1. Over 1,400 of these men are in the affiliated general hospital, evacuation hospital and surgical hospital units of forty-one medical schools. A list of these schools may be found in THE JOURNAL, Aug. 15, 1942, p. 1266, table 4.

2. Three thousand and sixty faculty members from sixty-four schools were reported to be in active service at that time by Dr. Harold Diehl (J. A. Am. M. Coll. 18:15, 1943).

dean, and Dr. James A. Greene, formerly of Iowa, is professor and chairman of the department of medicine and dean of the clinical faculties, on a full time basis. His present major responsibility is the development of the program of clinical instruction.

Utilizing the former Baylor clinical facilities, including the Parkland Hospital, a new medical school has been organized in Dallas. Preclinical laboratories and class rooms are in operation or being established adjacent to Parkland Hospital in temporary quarters which will be used during the war. Funds raised by the Southwestern Medical Foundation and the Dallas Chamber of Commerce will support the new school in its temporary quarters during the war and in the construction of new buildings after the war. Most of the former Baylor faculty and many of its students remain in Dallas. The acting dean is Dr. Donald Slaughter, formerly of Baylor and more recently of Vermont.

A new medical school is also projected in Florida. On June 14 a bill became law in that state providing for the establishment of the University of South Florida, which is to be a state university having as its primary purpose the creation of a school of medicine, a school of pharmacy and a school of dentistry. The law further provides that the medical and dental schools shall be maintained and operated in accordance with the standards of education approved by the American Medical Association and the American Dental Association.

Despite the added demands made by the accelerated program and an expanding curriculum on faculties seriously reduced in numbers, developments of educational importance are projected by many schools, some of which involve basic principles of medical education in this country.

Increases in clinical facilities not only have strengthened weak spots at a number of schools but are fostering further extensions of the concept that effective clinical teaching must center about a physician-patient relationship between student and patient. Ward work and outpatient department assignments continue to increase. Purely didactic clinical instruction continues to decrease.

Several schools report the appointment of faculty committees to review the curriculum and make recommendations for closer collaboration between instruction in the various fields of medicine. In general, there are two definite tendencies:

First, the line of demarcation between "preclinical" and "clinical" is becoming less sharply drawn. Medical instruction is being viewed as a four year unit rather than as two units of two years each. Introduction of well selected clinical material into the instructional program of the basic sciences is serving to emphasize the unity of the ends sought in medical education. Incorporation of material from the basic sciences into the work of the junior and senior years is stimulating a continued student interest in medicine as a science.

Second, there is increased interdepartmental collaboration in the presentation of related material, with the elimination of accidental, needless repetition and provision for planned, desirable repetition. A given system or organ, for example the kidney, is being considered as a complex of problems the presentation of which requires the resources of collaborating biochemists, anatomists, physiologists, pathologists and renovascular clinicians rather than as a subject to be presented in turn by departments of biochemistry, anatomy, physiology, pathology and medicine.

A noteworthy development in the schools of basic medical sciences (see table 6) is the tendency toward expansion into schools offering the full four year curriculum. Bowman Gray is at present operating both senior and junior classes. It will graduate its first class in December 1943. Utah has started a junior class, which will graduate in August 1944. In Alabama a bill has been passed providing for the establishment of a four year medical school in that state, and appropriating $1,000,000 for buildings and equipment and $366,000 annually for maintenance. In at least two other states there has been discussion of expansion of the two year schools.

An arrangement has been consummated between West Virginia and the Medical College of Virginia whereby "15 to 20 students completing the work of the second year in the West Virginia School of Medicine in Morgantown will transfer to the Medical College of Virginia in Richmond for the completion of the four years curriculum, effective January 1944." This experiment in interschool collaboration may well yield results of value to other schools of basic medical sciences. It is becoming increasingly difficult to place students who have completed the basic sciences into schools with facilities adequate to accept transfer students and provide clinical instruction of high quality.

APPROVED MEDICAL SCHOOLS

Medical schools and schools of the basic medical sciences in the United States and Canada approved by the Council on Medical Education and Hospitals of the American Medical Association for the academic session 1942-1943 are listed in tables 5 and 6, pages 1100, 1101 and 1102. The table includes quantitative premedical requirements for applicants not in the A. S. T. P. or V-12 premedical programs. The enrolment by classes, including fifth year students interning or engaged in research, the total attendance, which does not include fifth year students, and the number of graduates apply to the academic year immediately preceding the date of entrance of the first class entering in 1943. The data are treated in this way because of the irregularities in dates of commencement of the academic year and in dates of graduation, which have resulted from the adoption of the accelerated program. The name of the dean or acting dean is also given. Figures for the sixth year enrolment in Canadian schools are given in a footnote.

Four schools on a probationary status are indicated by asterisks. The University of Georgia School of Medicine has been reinstated on the list of approved schools, not on probation.

Three schools, Loyola, Wayne and Marquette, have discontinued the fifth year intern requirement for the M.D. degree. The numbers listed as graduating from these schools are high, since they include students who completed their four years of work in the last two academic sessions.

The fifth or intern year is now required for the M.D. degree by only six schools in the United States: College of Medical Evangelists, Southern California, Stanford, Northwestern, Minnesota and Duke.

The number of approved medical schools in the United States has been reduced to sixty-six, since no classes have been in operation at the Rush Medical College since June 1942, when the last class graduated.

Historical information regarding all institutions on the approved list of medical schools maintained by the Council is given on pages 1111 to 1118.

TABLE 5.—*Approved Medical Schools in the United States and Canada*

	Name and Location of School	1943-1944 Premedical Requirement by Years #	Students by Classes, Session Preceding First Class Entering in 1943 — 1st Year	2d Year	3d Year	4th Year	5th Year or Intern Year	Totals	Graduates July 1, 1942 to Date of Entrance of First Class in 1943	Executive Officer	
	ARKANSAS										
1	*University of Arkansas School of Medicine, Little Rock	60 Sem. Hrs.	82	71	61	70	...	284	70	Byron L. Robinson, M.D., Dean	1
	CALIFORNIA										
2	University of California Medical School, Berkeley-San Francisco	3	74	66	65	55	...	260	53	Francis Scott Smyth, M.D., Dean	2
3	College of Medical Evangelists, Loma Linda-Los Angeles	3	97	78	77	67	82†	319	82	Newton G. Evans, M.D., Dean, Loma Linda; W. F. Norwood, Ph.D., Assistant Dean, Los Angeles	3
4	University of Southern California School of Medicine, Los Angeles	3	61	54	54	49	45†	216	45	Burrell O. Raulston, M.D., Dean	4
5	Stanford University School of Medicine, Stanford University-San Francisco	3	62	60	60	57	61†	230	62	Loren Roscoe Chandler, M.D., Dean	5
	COLORADO										
6	University of Colorado School of Medicine, Denver	3	61	54	58	49	...	222	49	Maurice H. Rees, M.D., Dean	6
	CONNECTICUT										
7	Yale University School of Medicine, New Haven	2	59	53	54	48	...	214	44	Francis G. Blake, M.D., Dean	7
	DISTRICT OF COLUMBIA										
8	Georgetown University School of Medicine, Washington	2	97	69	61	60	...	287	69	David V. McCauley, S.J., Ph.D., Dean	8
9	George Washington University School of Medicine, Washington	2	70	76	64	71	...	281	71	Walter A. Bloedorn, M.D., Dean	9
10	Howard University College of Medicine, Washington	2	75	73	51	27	...	226	27	John W. Lawlah, M.D., Dean	10
	GEORGIA										
11	Emory University School of Medicine, Atlanta	2	68	55	50	53	...	226	52	Russell H. Oppenheimer, M.D., Dean	11
12	University of Georgia School of Medicine, Augusta	2	78	72	46	46	...	242	46	G. Lombard Kelly, M.D., Dean	12
	ILLINOIS										
13	Loyola University School of Medicine, Chicago	90 Sem. Hrs.	86	80	69	53	62†	290	114‡	Francis J. Braceland, M.D., Dean	13
14	Northwestern University Medical School, Chicago	2	132	134	152	103	130†	651	139	J. Roscoe Miller, M.D., Dean	14
15	University of Chicago, The School of Medicine	60 Sem. Hrs.	67	61	53	70	...	251	42	B. C. H. Harvey, M.D., Dean of Students	15
16	University of Illinois College of Medicine, Chicago	2	177	171	164	149	...	661	151	Raymond B. Allen, M.D., Dean	16
	INDIANA										
17	Indiana University School of Medicine, Bloomington-Indianapolis	2	131	116	120	117	...	486	104	Willis D. Gatch, M.D., Dean	17
	IOWA										
18	State University of Iowa College of Medicine, Iowa City	3	100	80	66	65	...	311	63	Ewen Murchison MacEwen, M.D., Dean	18
	KANSAS										
19	University of Kansas School of Medicine, Lawrence-Kansas City	2 & Degree	104	84	85	82	...	355	92	H. R. Wahl, M.D., Dean	19
	KENTUCKY										
20	University of Louisville School of Medicine, Louisville	2	93	91	89	92	...	365	92	John Walker Moore, M.D., Dean	20
	LOUISIANA										
21	Louisiana State University School of Medicine, New Orleans	66 Sem. Hrs.	97	88	78	81	...	344	78	Beryl I. Burns, M.D., Dean	21
22	Tulane University of Louisiana School of Medicine, New Orleans	2	141	125	123	121	...	510	121	Hiram W. Kostmayer, M.D., Dean	22
	MARYLAND										
23	Johns Hopkins University School of Medicine, Baltimore	2	75	67	73	73	...	288	73	Alan M. Chesney, M.D., Dean	23
24	University of Maryland School of Medicine and Coll. of Phys. and Surg., Baltimore	2	94	91	90	98	...	372	98	Robert U. Patterson, M.D., Dean	24
	MASSACHUSETTS										
25	Boston University School of Medicine, Boston	2	71	62	46	46	...	225	44	Bennett F. Avery, M.D., Dean	25
26	Harvard Medical School, Boston	2	128	133	135	144	...	540	148	C. Sidney Burwell, M.D., Dean	26
27	Tufts College Medical School, Boston	2	111	103	101	96	...	411	94	Dwight O'Hara, M.D., Acting Dean	27
	MICHIGAN										
28	University of Michigan Medical School, Ann Arbor	90 Sem. Hrs.	155	115	119	109	...	498	98	A. C. Furstenberg, M.D., Dean	28
29	Wayne University College of Medicine, Detroit	2	69	64	59	65	67†	257	135‡	Edgar H. Norris, M.D., Dean	29
	MINNESOTA										
30	University of Minnesota Medical School, Minneapolis	2	127	141	111	119	113†	606	111	Harold S. Diehl, M.D., Dean	30
	MISSOURI										
31	St. Louis University School of Medicine, St. Louis	2	131	109	112	112	...	464	112	Alphonse M. Schwitalla, S.J., Ph.D., Dean	31
32	Washington University School of Medicine, St. Louis	2	85	76	116	97	...	374	94	Phillip A. Shaffer, Ph.D., Dean	32

	NEBRASKA										
33	Creighton University School of Medicine, Omaha	64 Sem. Hrs.	72	64	61	44	...	241	44	Charles M. Wilhelmj, M.D., Dean	33
34	University of Nebraska College of Medicine, Omaha	2	86	86	75	74	...	332	74	C. W. M. Poynter, M.D., Dean	34
	NEW YORK										
35	Albany Medical College, Albany	2	44	39	39	33	...	155	34	R. S. Cunningham, M.D., Dean	35
36	Long Island College of Medicine, Brooklyn	2	109	108	97	88	...	390	68	Jean A. Curran, M.D., President and Dean	36
37	University of Buffalo School of Medicine, Buffalo	2	77	70	63	66	...	276	66	Edward W. Koch, M.D., Dean	37
38	Columbia University College of Physicians and Surgeons, New York	2	116	128	109	97	...	448	95	Willard C. Rappleye, M.D., Dean	38
39	Cornell University Medical College, New York	2	84	72	82	76	...	314	73	Joseph C. Hinsey, Ph.D., Dean	39
40	New York Medical College, Flower and Fifth Avenue Hospitals, New York	2	93	99	82	76	...	349	68	J. A. W. Hetrick, M.D., President and Dean	40
41	New York University College of Medicine, New York	2	134	130	122	119	...	505	124	Donal Sheehan, M.D., Acting Dean	41
42	University of Rochester School of Medicine and Dentistry, Rochester	3	68	64	59	55	...	245	59	George H. Whipple, M.D., Dean	42
43	Syracuse University College of Medicine, Syracuse	2	56	48	38	42	...	184	41	H. G. Weishuttel, M.D., Dean	43
	NORTH CAROLINA										
44	Duke University School of Medicine, Durham	2	68	72	65	61	...	264	61	Wilbur C. Davison, M.D., Dean	44
	OHIO										
45	University of Cincinnati College of Medicine, Cincinnati	2	86	72	73	77	...	308	76	Stanley Dorst, M.D., Dean	45
46	Western Reserve University School of Medicine, Cleveland	2	90	78	69	69	...	306	69	Torald Sollmann, M.D., Dean	46
47	Ohio State University College of Medicine, Columbus	2	84	78	71	67	...	300	67	R. C. Baker, Ph.D., Acting Dean	47
	OKLAHOMA										
48	University of Oklahoma School of Medicine, Oklahoma City	60 Sem. Hrs.	76	57	51	61	...	245	59	Tom Lowry, M.D., Dean	48
	OREGON										
49	University of Oregon Medical School, Portland	92 Sem. Hrs.	75	69	69	60	...	273	56	D. W. E. Baird, M.D., Dean	49
	PENNSYLVANIA										
50	Hahnemann Medical College and Hospital of Philadelphia	90 Sem. Hrs.	157	113	116	126	...	512	126	William A. Pearson, M.D., Dean	50
51	Jefferson Medical College of Philadelphia	§	153	127	134	142	...	556	142	William N. Perkins, M.D., Dean	51
52	Temple University School of Medicine, Philadelphia	2	119	102	122	120	...	463	120	William N. Parkinson, M.D., Dean	52
53	University of Pennsylvania School of Medicine, Philadelphia	90 Sem. Hrs.	130	116	131	132	...	511	130	William Pepper, M.D., Dean	53
54	Woman's Medical College of Pennsylvania, Philadelphia	3	41	34	22	22	...	119	22	Marion Fay, Ph.D., Acting Dean	54
55	University of Pittsburgh School of Medicine, Pittsburgh	2	91	85	85	75	...	336	72	William S. McElroy, M.D., Dean	55
	SOUTH CAROLINA										
56	Medical College of the State of South Carolina, Charleston	2	50	48	45	46	...	189	46	Robert Wilson, M.D., Dean	56
	TENNESSEE										
57	University of Tennessee College of Medicine, Memphis	2	153	132	116	109	...	510	109	O. W. Hyman, Ph.D., Dean	57
58	Meharry Medical College, Nashville	2	65	65	62	59	...	242	59	Michael J. Bent, M.D., Dean	58
59	Vanderbilt University School of Medicine, Nashville	3 & Degree	53	52	52	52	...	209	52	Walter S. Leathers, M.D., Dean	59
	TEXAS										
60	Baylor University College of Medicine, Houston (formerly Dallas)	60 Sem. Hrs.	84	78	79	77	...	318	77	Walter H. Moursund, M.D., Dean	60
61	*University of Texas Medical Branch, Galveston	72 Sem. Hrs.	99	109	96	97	...	398	97	Chauncey D. Leake, Ph.D., Dean	61
	VERMONT										
62	University of Vermont College of Medicine, Burlington	§	36	32	34	31	...	133	31	Clarence H. Beecher, M.D., Dean	62
	VIRGINIA										
63	University of Virginia Department of Medicine, Charlottesville	2	77	66	57	56	...	256	55	Harvey E. Jordan, Ph.D., Dean	63
64	Medical College of Virginia, Richmond	2	80	81	74	71	...	306	66	J. P. Gray, M.D., Dean	64
	WISCONSIN										
65	University of Wisconsin Medical School, Madison	2	77	77	69	63	...	277	63	Walter J. Meek, Ph.D., Acting Dean	65
66	Marquette University School of Medicine, Milwaukee	2	109	97	71	77	73†	345	150‡	Eben J. Carey, M.D., Dean	66
	CANADA										
67	University of Alberta Faculty of Medicine, Edmonton, Alta	2	...	22	33	30	30†	160	33	John James Ower, M.D., Acting Dean	67
68	University of Manitoba Faculty of Medicine, Winnipeg, Man	2	61	50	55	62	51†	228	50	A. T. Mathers, M.D., Dean	68
69	Dalhousie University Faculty of Medicine, Halifax, N. S.	2	50	50	34	37	37†	171	37	H. G. Grant, M.D., Dean	69
70	Queen's University Faculty of Medicine, Kingston, Ont	1	46	47	48	41	47†	270	45	Frederick Etherington, M.D., Dean	70
71	University of Western Ontario Medical School, London, Ont	2	69	45	31	36	31†	224	39	F. J. H. Campbell, M.D., Dean	71
72	University of Toronto Faculty of Medicine, Toronto, Ont	1	149	130	123	127	107†	753	107	W. E. Gallie, M.D., Dean	72
73	McGill University Faculty of Medicine, Montreal, Que	3	116	98	100	95	...	409	94	J. B. Fraser, M.D., Dean	73
74	University of Montreal Faculty of Medicine, Montreal, Que	Degree	85	56	45	51	51†	227	53	Albert LeSage, M.D., Dean	74
75	Laval University Faculty of Medicine, Quebec, Que	Degree	127	73	63	56	63	364	47	Charles Vézina, M.D., Dean	75

Statistics of approved schools of the basic medical sciences will be found in table 6, page 1162.

* On probation.

§ These premedical requirements apply to civilian applicants in most instances. All schools in the United States will consider completion of the Army or Navy premedical program, by male applicants on active duty, as fulfilling academic admission requirements.

† Fifth year (internship) enrolment not included in the total column.

‖ Completion of Army or Navy premedical curriculum.

¶ Sixth year enrolment: Alberta 33; Toronto 108; Queens 46, and Western Ontario 39.

‡ Intern year no longer required for degree. Figure is essentially for two classes of graduates.

ENROLMENTS

Enrolment figures by classes for the academic year ending with the admission of the first class in 1943 are given in tables 5 and 6 and recapitulated in table 7. In the seventy-six schools in the United States there were 22,631 students studying medicine (excluding the fifth year), which is an increase of 600 students, or 2.7 per cent above the preceding academic session. In the Canadian schools there were 2,386 students (excluding the fifth and sixth years), an enrolment increase of 48 students, or 2.0 per cent. In addition there were 566 fifth year students in schools of the United States plus 403 fifth year and 219 sixth year students in Canada.

STUDENTS BY CLASSES, 1931-1943

The number of students enrolled in preclinical and clinical classes and in internships when required for graduation in medical schools of the United States is shown in table 9, covering the past thirteen years. The numbers in each of the four classes in 1942-1943 show a substantial increase over the preceding academic session. The sophomore and junior classes were larger than at any other time for this period. The freshman class was larger than last year's on three occasions from 1930 to 1934. The senior class was larger in 1936-1937 than that of last year. The number interning as a requirement for the degree continued to fall because of schools dropping this requirement for the degree.

TABLE 6.—*Approved Schools of the Basic Medical Sciences in the United States and Canada*

Name and Location of School	1943-1944 Premedical Requirement by Years #	Students by Classes, Session Preceding First Class Entering in 1943: 1st Year	2d Year	Totals	Executive Officer	
ALABAMA						
1 University of Alabama School of Medicine, University (Tuscaloosa)	60 sem. hrs.	35	47	19	Stuart Graves, M.D., Dean	1
MISSISSIPPI						
2 University of Mississippi School of Medicine, University	3	30	28	58	B. S. Guyton, M.D., Dean	2
MISSOURI						
3 University of Missouri School of Medicine, Columbia	2	44	31	75	Dudley S. Conley, M.D., Dean	3
NEW HAMPSHIRE						
4 Dartmouth Medical School, Hanover	1	22	24	46	John P. Bowler, M.D., Dean	4
NORTH CAROLINA						
5 University of North Carolina School of Medicine, Chapel Hill	3	49	42	91	W. Reece Berryhill, M.D., Dean	5
6 †Bowman Gray School of Medicine of Wake Forest Coll., Winston-Salem	2	49	3.5	114	C. C. Carpenter, M.D., Dean	6
NORTH DAKOTA						
7 *University of North Dakota School of Medicine, Grand Forks	2	28	25	53	H. E. French, M.D., Dean	7
SOUTH DAKOTA						
8 *University of South Dakota School of Medical Sciences, Vermillion	3	27	22	49	Joseph C. Ohlmacher, M.D., Dean	8
UTAH						
9 †University of Utah School of Medicine, Salt Lake City	5	44	35	79	A. Cyril Callister, M.D., Dean	9
WEST VIRGINIA						
10 West Virginia University School of Medicine, Morgantown	3	30	26	56	Edward J. Van Liere, M.D., Dean	10
CANADA						
11 University of Saskatchewan School of Medical Sciences, Saskatoon, Sask.	2	21	20	41	W. S. Lindsay, M.B., Dean	11

* On probation.
# These premedical requirements apply to civilian applicants in most instances. All schools in the United States will consider completion of the Army or Navy premedical program, by male applicants on active duty, as fulfilling academic admission requirements.
† Have started four-year programs.
‡ Completion of Army and Navy requirements.
§ Third year students 33.

In schools offering the complete four years of work the three schools in the United States with the highest enrolments were Illinois 661, Northwestern 581 and Jefferson 556. The three with the lowest enrolments were Woman's Medical College 119, Vermont 133 and Albany 155. In Canada the highest enrolment occurred at Toronto with 753 students in the six years, and the lowest at Alberta with 160 students in its five year course.

In no school of the basic medical sciences did the enrolment in either the freshman or the sophomore class exceed 50, with the sole exception of the freshman class at Alabama, which was 52.

The enrolment in the classes now in session in the United States is shown for each school in table 8. For comparison with enrolments in the two preceding sessions, total figures are also given in the last column of table 7. There are now 23,204 students in the schools in the United States. This is 573 students more than were in school in the academic session last completed, an increase of 2.5 per cent. The tendency toward increased enrolments each year continues. This serves the desired end of providing more medical officers and civilian physicians. However, each school should consider carefully whether available facilities warrant further increases and whether the quality of the educational product might not be inferior to that which is desirable not only in a medical officer but in civilian practice.

TABLE 7.—*Total Enrolments by Classes in Medical Schools of the United States and Canada for the Academic Year Ending with the Admission of the First Class in 1943. Students in the Intern Year Are Not Included.*

	Freshmen	Sophs.	Jrs.	Srs.	Total	Total Last Session (1941-1942)	Total Present Session (1943)
66 Medical Schools (U. S.)	6,050	5,516	5,245	5,100	21,911	21,392	22,579
10 Basic Science Schools (U. S.)	375	312	33*	....	7.0	693	*825
Total (U. S.)	6,425	5,828	5,278	5,100	22,631	22,051	23,304
9 Medical Schools (Can.)†	685	540	522	545	2,342	2,290	
1 Basic Science School (Can.)	24	20	...	...	44	48	
Total (Can.)	709	660	522	545	2,386	2,338	
Total U. S. and Can.	7,134	6,488	5,800	5,645	25,017	24,389	

* At Bowman Gray.
† The first four years in some Canadian schools do not correspond to those years in schools of the United States.
‡ Includes juniors at Utah and juniors and seniors at Bowman Gray.
§ Does not include 483 students in fifth and sixth years.

GRADUATES

In table 5 are included all graduates since July 1, 1942 until the opening of the first academic session commencing in 1943. Such sessions opened in different schools anywhere from January to July. In the period thus defined there were 5,223 graduates. To this figure

may be added the estimated 10,889 students who will graduate as shown in table 4 between the time of the opening of the first academic session in 1943 and January 1945. The total figure, 16,112, is the number of students who have graduated or will graduate in a period of thirty months from July 1, 1942 to Jan. 1, 1945. For comparison with the figures on graduates of preceding classes, which have been expressed per calendar year, the figure 16,112 for thirty months may be converted into an average of 6,445 graduates per calendar year, which far exceeds the number ever graduated from schools in the United States even at the time when one hundred and sixty schools were operating, in 1905.

This figure is a conservative expression of the probabilities, since there will probably be an additional 4,500 graduates in the first six months after Jan. 1, 1945, totaling over 20,000 graduates in a period of exactly three years from July 1, 1942 to July 1, 1945, or nearly 7,000 a year. The latter figure is that estimated by Dr. H. G. Weiskotten a year [3] ago on the basis of far less information than is now available.

From table 5 it is seen that the three schools graduating the most students in the last academic session are Illinois 151, Harvard 148 and Jefferson 142. Marquette had 150 graduates, but these included students from two classes, because of the elimination of the internship requirement for the M.D. degree. The smallest numbers were graduated from Vermont 31, Howard 27 and Woman's Medical College 22.

From the nine medical schools of Canada there were 496 graduates. The largest number, 107, graduated from Toronto and the smallest number, 30, received degrees from Western Ontario.

TABLE 8.—*Enrolment, 1943; Classes Now in Session*

	1st Year	2d Year	3d Year	4th Year
University of Alabama	55	56	..	..
University of Arkansas	82	75	67	68
University of California	72	74	68	66
College of Medical Evangelists	95	90	72	75
University of Southern California	65	64	54	54
Stanford University	62	62	60	60
University of Colorado	65	64	55	56
Yale University (Connecticut)	60	62	46	54
Georgetown Univ. (District of Columbia)	99	92	64	63
George Washington University	83	76	76	64
Howard University	75	77	73	51
Emory University (Georgia)	69	69	69	56
University of Georgia	76	75	60	46
Loyola University (Illinois)	88	80	89	71
Northwestern University	131	134	158	134
University of Chicago	65	67	61	53
University of Illinois	166	165	165	160
Indiana University	130	116	129	120
State University of Iowa	89	87	76	64
University of Kansas	104	104	84	82
University of Louisville (Kentucky)	96	89	89	89
Louisiana State University	100	78	82	77
Tulane University	141	131	137	121
Johns Hopkins University (Maryland)	75	74	73	81
University of Maryland	101	83	96	90
Boston University (Massachusetts)	78	67	58	45
Harvard Medical School	122	127	141	148
Tufts College Medical School	110	102	100	101
University of Michigan	170	146	118	119
Wayne University	73	65	66	59
University of Minnesota	126	122	138	109
University of Mississippi	30	25	..	..
St. Louis University (Missouri)	135	130	100	113
University of Missouri	44	35	..	..
Washington University	96	85	105	115
Creighton University (Nebraska)	70	66	60	59
University of Nebraska	91	87	86	76
Dartmouth Med. School (New Hampshire)	23	25	..	..
Albany Medical College (New York)	51	41	40	38
Long Island College of Medicine	113	105	103	92
University of Buffalo	86	78	70	61
Columbia University	119	114	122	109
Cornell University	84	77	79	74
New York Medical College	100	97	92	83
New York University	142	126	131	120
University of Rochester	68	62	64	62
Syracuse University	56	53	46	38
Duke University (North Carolina)	77	67	72	65
University of North Carolina	49	41	..	..
Bowman Gray School of Medicine	51	44	38	34
University of North Dakota	28	25	..	..
University of Cincinnati (Ohio)	86	71	81	75
Western Reserve University	91	86	74	67
Ohio State University	84	78	69	70
University of Oklahoma	76	69	58	51
University of Oregon	74	72	70	63
Hahnemann Med. College (Pennsylvania)	154	138	113	116
Jefferson Medical College	160	140	138	132
Temple University	119	119	102	122
University of Pennsylvania	133	119	132	132
Woman's Medical College	45	42	34	21
University of Pittsburgh	86	80	78	84
Medical College of South Carolina	50	46	49	43
University of South Dakota	29	..	..	..
University of Tennessee	105	90	107	81
Meharry Medical College	65	61	62	62
Vanderbilt University	51	52	54	50
Baylor University (Texas)	84	55*	60*	60*
University of Texas	100	105	110	96
University of Utah	42	42	40	..
University of Vermont	40	38	32	34
University of Virginia	73	62	73	54
Medical College of Virginia	80	81	78	72
West Virginia University	30	25	..	..
University of Wisconsin	72	78	61	57
Marquette University	97	93	85	72
Totals	6,440	6,016	5,560	5,188

* May require revision.

TABLE 9.—*Students in the United States by Years, Including the Intern Year When Required for Graduation, 1931-1943*

	Preclinical		Clinical		Intern Year	Total
1930-1931	6,456	5,538	5,080	4,998	1,025	23,097
1931-1932	6,390	5,462	4,932	4,895	1,067	23,292
1932-1933	6,426	5,479	5,017	4,984	1,108	23,572
1933-1934	6,457	5,571	4,988	4,967	1,183	23,982
1934-1935	6,356	5,624	5,142	4,965	1,233	24,121
1935-1936	6,005	5,458	5,230	5,020	1,213	23,777
1936-1937	5,910	5,369	5,140	5,134	1,253	23,350
1937-1938	5,791	5,225	4,986	5,086	1,132	22,710
1938-1939	5,754	5,160	4,947	4,921	1,132	22,454
1939-1940	5,794	5,177	4,921	4,894	1,132	22,423
1940-1941	5,857	5,234	4,969	4,949	1,058	22,457
1941-1942	6,218	5,406	5,087	4,942	767	22,798
1942-1943	6,425	5,828	5,278	5,100	639	23,270

TABLE 10.—*Schools, Students and Graduates by States* *

	Schools	Students	Graduates
Alabama	1	99	..
Arkansas	1	284	70
California	4	1,036	242
Colorado	1	222	49
Connecticut	1	214	44
District of Columbia	3	804	167
Georgia	2	408	98
Illinois	4	1,783	445
Indiana	1	486	104
Iowa	1	311	63
Kansas	1	335	90
Kentucky	1	365	92
Louisiana	2	854	199
Maryland	2	661	171
Massachusetts	3	1,176	248
Michigan	2	740	232
Minnesota	1	498	111
Mississippi	1	58	..
Missouri	3	943	216
Nebraska	2	573	116
New Hampshire	1	46	..
New York	9	2,864	611
North Carolina	3	367	61
North Dakota	1	58	..
Ohio	3	944	212
Oklahoma	1	245	59
Oregon	1	173	56
Pennsylvania	6	2,497	612
South Carolina	1	190	49
South Dakota	1	49	..
Tennessee	3	961	211
Texas	2	711	164
Utah	1	79	..
Vermont	1	133	31
Virginia	2	564	123
West Virginia	1	56	..
Wisconsin	2	622	213
Totals	76	22,681	5,229

* Excluding fifth or intern year students.

GRADUATES BY STATES

The seventy-six schools in the United States are located in thirty-six states and the District of Columbia. The numbers of schools, students and graduates by states are shown in table 10. Each of five states enrolled

3. J. A. M. A. 119: 1265 (Aug. 15) 1942, table 3.

TABLE 11.—*Residence*

Marginal Number		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Marginal Number
1	University of Alabama School of Medicine	91	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	1
2	University of Arkansas School of Medicine	..	..	273	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	2
3	University of California Medical School	..	1	..	255	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
4	College of Medical Evangelists	..	2	..	100	2	..	..	3	6	..	2	5	2	2	7	..	..	1	10	12	15	4
5	University of Southern California School of Med.	..	3	..	276	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Stanford University School of Medicine	..	2	..	121	3	1	..	..	..	..	2	8	..	3	3	..	2	..	1	2	2	6
7	University of Colorado School of Medicine	..	1	..	..	100	1	..	..	..	..	1	1	2	..	1	..	..	..	..	..	..	7
8	Yale University School of Medicine	1	..	..	4	1	53	..	..	..	..	..	5	1	2	1	1	1	8	1	21	3	8
9	Georgetown University School of Medicine	1	..	..	6	..	18	1	20	2	1	1	1	..	..	..	..	..	3	14	18	..	9
10	George Washington University School of Med.	4	4	..	28	1	4	..	82	..	..	9	2	3	2	..	1	..	1	12	6	4	10
11	Howard University School of Medicine	4	1	2	4	..	..	2	30	5	5	..	5	2	1	..	1	10	..	4	5	..	11
12	Emory University School of Medicine	13	..	..	..	..	..	1	..	44	138	..	..	..	..	..	1	1	..	..	..	..	12
13	University of Georgia School of Medicine	..	..	..	..	..	..	..	..	..	242	..	..	..	..	..	..	..	..	..	..	..	13
14	Loyola University School of Medicine	1	..	1	10	..	3	1	..	..	..	102	13	10	1	..	..	..	..	2	11	14	14
15	Northwestern University Medical School	2	7	1	32	7	..	1	2	..	6	285	27	13	10	5	..	..	..	2	17	15	15
16	University of Chicago, The School of Medicine	..	1	1	5	2	2	..	1	1	..	8	100	11	3	1	1	..	1	..	2	14	16
17	University of Illinois College of Medicine	..	..	..	..	..	..	1	..	..	..	..	640	2	1	..	1	..	..	..	..	1	17
18	Indiana University School of Medicine	1	..	..	..	..	..	..	..	..	..	1	470	..	..	1	..	..	1	..	..	..	18
19	State University of Iowa College of Medicine	..	..	..	..	..	..	..	..	..	..	1	..	304	..	..	..	..	..	..	..	..	19
20	University of Kansas School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	334	..	..	..	..	..	..	..	20
21	University of Louisville School of Medicine	5	4	1	10	1	2	..	..	2	1	5	7	26	1	..	167	..	..	1	6	21	21
22	Louisiana State University School of Medicine	5	..	1	1	..	1	..	..	3	1	1	2	..	1	1	..	294	..	1	..	..	22
23	Tulane University of Louisiana School of Med.	52	5	11	10	..	..	..	..	28	12	..	1	1	..	1	8	148	..	..	3	..	23
24	Johns Hopkins University School of Medicine	2	..	2	7	1	6	2	10	11	8	1	7	2	..	1	1	..	4	63	20	2	24
25	University of Maryland School of Medicine	2	2	..	4	..	5	..	30	7	7	..	1	1	..	..	..	..	..	180	11	..	25
26	Boston University School of Medicine	..	..	..	5	1	13	1	..	..	..	..	..	..	..	..	..	..	9	..	141	..	26
27	Harvard Medical School	6	2	2	18	7	13	..	6	4	6	1	28	8	2	3	9	1	6	5	165	6	27
28	Tufts College Medical School	..	..	..	..	..	28	..	1	..	..	..	1	..	..	..	..	..	18	1	205	..	28
29	University of Michigan Medical School	..	..	..	6	1	4	..	1	3	..	4	5	4	..	..	4	..	..	..	..	1	340	29
30	Wayne University College of Medicine	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	244	30
31	University of Minnesota Medical School	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	1	..	..	..	..	1	..	31
32	University of Mississippi School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
33	University of Missouri School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
34	St. Louis University School of Medicine	1	3	2	42	2	2	..	..	1	..	4	42	20	11	6	2	..	1	1	6	6	34
35	Washington University School of Medicine	12	5	6	24	3	1	..	..	..	..	11	46	4	4	17	..	..	..	..	2	3	35
36	Creighton University School of Medicine	..	1	..	61	8	1	..	..	..	..	3	3	..	24	8	..	..	..	..	3	1	36
37	University of Nebraska College of Medicine	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	37
38	Dartmouth Medical School	..	..	..	..	2	2	..	..	..	..	..	2	..	..	..	..	..	..	..	12	..	38
39	Albany Medical College	1	..	..	1	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	6	1	39
40	Long Island College of Medicine	5	..	..	1	1	13	1	..	2	..	..	1	..	..	..	2	..	2	..	5	1	40
41	University of Buffalo School of Medicine	..	..	..	1	1	1	..	..	..	..	1	..	..	..	..	..	..	1	..	2	2	41
42	Columbia University College of Phys. and Surg.	6	3	2	5	2	20	..	3	8	3	3	9	2	2	..	1	..	4	3	30	2	42
43	Cornell University Medical College	3	1	..	9	1	11	..	..	1	2	3	2	..	2	..	..	..	6	..	20	2	43
44	New York Medical College	..	1	..	2	..	15	..	..	..	..	..	..	..	..	..	1	..	..	1	7	1	44
45	New York University College of Medicine	2	..	..	2	..	19	1	1	1	1	..	..	..	..	1	..	..	..	..	8	..	45
46	Univ. of Rochester School of Med. and Dentistry	..	1	..	14	..	4	2	1	..	1	2	1	..	1	1	..	1	..	14	2	46
47	Syracuse University College of Medicine	..	1	..	1	..	2	..	..	1	..	1	..	..	..	..	..	..	..	3	..	47
48	University of North Carolina School of Medicine	..	..	..	..	..	..	3	3	1	..	..	1	..	..	..	..	1	..	..	..	..	48
49	Duke University School of Medicine	4	1	1	2	..	1	1	3	22	9	2	3	..	1	..	4	..	3	7	5	49	49
50	Wake Forest College School of Medicine	2	1	..	..	..	..	..	..	2	2	..	..	..	..	1	2	..	..	..	..	..	50
51	University of North Dakota School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
52	University of Cincinnati College of Medicine	2	..	..	4	1	..	..	..	2	1	..	8	7	..	..	19	..	1	..	1	6	52
53	Western Reserve University School of Medicine	..	..	..	4	..	2	1	..	..	..	4	3	..	1	..	..	1	1	4	12	53	53
54	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	54
55	University of Oklahoma School of Medicine	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55
56	University of Oregon Medical School	..	..	..	3	..	..	..	..	..	..	15	..	..	..	..	..	..	..	..	..	..	56
57	Hahnemann Medical College	7	3	1	20	..	12	3	1	4	1	1	3	4	3	..	2	..	1	1	7	..	57
58	Jefferson Medical College of Philadelphia	5	..	..	3	..	11	10	1	1	..	5	..	4	2	..	1	..	2	2	3	2	58
59	Temple University School of Medicine	1	..	..	5	1	3	5	2	9	..	3	4	..	2	..	..	..	..	..	6	2	59
60	University of Pennsylvania School of Medicine	10	1	..	6	..	6	8	2	3	..	1	1	4	..	2	1	1	5	4	2	3	60
61	Woman's Medical College of Pennsylvania	..	..	..	5	1	3	..	1	2	2	..	7	..	..	..	..	..	..	..	..	6	61
62	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	62
63	Medical College of the State of South Carolina	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	63
64	Univ. of South Dakota School of Med. Sciences	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	64
65	University of Tennessee College of Medicine	16	1	21	..	..	..	..	..	13	3	2	5	..	..	2	14	1	..	1	1	..	65
66	Meharry Medical College	10	..	3	2	1	1	2	6	8	10	..	18	5	..	2	6	11	..	1	3	6	66
67	Vanderbilt University School of Medicine	21	..	3	1	1	1	..	..	8	7	..	3	..	..	3	23	1	..	..	..	..	67
68	Baylor University College of Medicine	3	3	1	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	68
69	University of Utah Medical Branch	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	69
70	University of Utah School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70
71	University of Vermont College of Medicine	1	..	..	..	..	7	..	..	..	..	..	..	1	..	..	..	..	1	..	9	..	71
72	University of Virginia Department of Medicine	8	1	..	..	..	2	1	5	7	..	..	..	..	..	5	..	..	2	1	2	2	72
73	Medical College of Virginia	..	..	..	3	..	..	..	1	7	..	..	..	..	..	2	..	..	1	1	1	..	73
74	West Virginia University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	74
75	University of Wisconsin Medical School	1	..	..	..	..	..	..	..	..	..	1	4	..	..	1	..	..	..	1	..	..	75
76	Marquette University School of Medicine	..	..	..	23	2	..	..	..	..	..	1	7	1	1	1	1	..	..	3	24	76	76
77	University of Alberta Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	77
78	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	78
79	Dalhousie University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79
80	Queen's University Faculty of Medicine	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	80
81	University of Western Ontario Medical School	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	81
82	University of Toronto Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	82
83	McGill University Faculty of Medicine	1	..	..	22	..	2	..	2	..	..	2	2	..	..	..	..	..	4	1	12	1	83
84	University of Montreal Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	84
85	Laval University Faculty of Medicine	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	4	..	5	..	85
86	Univ. of Saskatchewan School of Med. Sciences	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	86
	Total	319	69	315	1080	255	307	48	199	278	465	100	1275	631	402	212	280	473	80	315	850	709	

of Students

Marginal Number	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Canada	Foreign	Totals	Marginal Number
1	..	1	..	..	..	..	..	2	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	1
2	1	..	4	..	..	..	..	..	..	9	..	..	1	2	..	..	..	..	..	4	3	..	..	..	..	..	2	..	..	..	..	261	2
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	260	3
4	7	2	2	1	5	1	..	2	2	14	2	1	3	2	13	7	..	1	1	4	7	..	..	2	28	1	5	..	2	19	16	319	4
5	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	1	1	218	5
6	4	..	2	4	2	2	..	4	2	8	1	1	..	2	4	4	..	..	..	2	12	..	..	19	..	..	1	3	3	9	220	6
7	..	..	..	5	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	3	..	..	..	..	222	7
8	3	..	4	1	..	..	2	17	..	36	..	1	3	3	..	15	8	..	..	..	4	..	1	..	1	..	..	..	1	..	7	214	8
9	1	..	..	..	..	..	6	38	..	95	1	..	6	..	1	31	10	1	2	..	1	1	1	3	2	3	..	..	7	..	1	267	9
10	..	1	5	..	1	..	1	15	..	15	2	..	15	5	3	11	2	..	2	..	1	2	1	9	2	8	2	..	6	..	..	225	10
11	..	2	1	..	..	..	..	12	..	30	11	..	8	1	..	25	1	2	..	..	4	..	..	12	..	3	2	..	4	..	7	226	11
12	..	5	..	..	..	..	..	..	..	2	2	..	2	..	..	..	..	11	..	..	7	..	..	1	..	..	..	..	..	..	..	226	12
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	212	13
14	2	..	1	1	1	1	..	11	..	12	..	2	17	..	..	12	..	..	2	..	1	..	..	2	1	7	..	2	..	..	..	200	14
15	7	3	16	9	4	3	..	2	1	5	2	11	25	1	4	8	..	1	15	1	9	18	..	..	54	4	19	7	3	1	1	561	15
16	3	2	1	6	3	..	..	3	1	9	1	..	14	4	2	4	1	..	5	..	5	4	..	1	15	..	9	1	1	..	..	251	16
17	..	..	..	1	1	..	..	..	..	2	..	..	3	..	..	1	..	..	..	..	..	..	..	..	1	..	4	1	..	..	1	661	17
18	..	..	..	..	..	..	..	3	..	6	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	476	18
19	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	2	211	19
20	..	..	19	7	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	335	20
21	1	4	1	..	..	..	..	9	..	17	2	..	25	..	..	3	..	1	2	5	1	12	..	..	13	12	5	..	4	1	1	365	21
22	..	1	3	1	..	..	..	3	..	9	..	..	..	1	..	..	..	3	..	1	6	1	..	..	1	..	1	..	1	..	3	344	22
23	..	48	3	..	..	..	1	19	4	86	1	..	2	14	..	3	1	4	..	3	32	..	..	4	1	1	2	11	..	18	510	23
24	2	5	3	1	1	..	1	11	1	25	10	1	10	5	1	15	1	8	2	3	8	..	..	9	3	5	2	..	1	..	5	268	24
25	..	..	..	..	..	1	2	18	1	9	23	..	6	..	1	22	..	..	..	2	..	5	..	2	1	1	..	..	20	..	2	373	25
26	..	..	..	1	..	..	7	5	..	18	1	..	2	1	..	3	6	..	..	..	..	..	..	..	..	..	..	..	10	..	..	225	26
27	12	3	16	3	2	..	5	14	1	67	12	2	31	2	3	59	14	28	1	1	10	10	2	2	3	10	..	7	..	6	1	29	540	27
28	3	..	1	4	3	..	17	1	..	7	1	..	1	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	411	28
29	3	..	1	1	4	3	..	1	2	15	..	1	2	31	..	2	4	..	2	1	1	1	..	..	2	5	2	5	2	10	..	8	449	29
30	..	..	1	..	..	..	..	..	..	2	..	..	1	4	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	257	30
31	451	..	..	11	2	..	..	2	..	3	..	..	6	1	..	..	..	..	?	..	1	..	..	..	2	..	7	..	..	..	3	498	31
32	..	58	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	58	32
33	5	..	75	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75	33
34	5	..	72	16	..	1	1	12	3	51	..	2	73	1	3	16	2	..	1	2	7	2	..	..	22	2	7	2	8	1	..	464	34
35	2	4	139	2	2	1	..	3	2	11	7	1	3	4	6	3	..	..	3	2	5	14	..	2	14	4	3	1	2	..	5	574	35
36	7	..	10	6	46	..	..	3	..	14	..	..	2	2	1	6	..	..	..	9	..	1	4	..	11	..	2	5	4	1	..	241	36
37	..	..	..	..	227	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	232	37
38	4	..	..	..	..	..	6	3	..	11	..	..	1	..	..	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	46	38
39	..	1	..	..	..	..	1	13	..	125	..	..	3	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	155	39
40	..	..	..	..	..	..	1	46	3	362	..	..	..	..	..	6	..	..	1	..	..	..	..	1	..	..	2	..	1	..	5	299	40
41	..	..	..	..	..	..	..	3	..	239	..	..	11	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	276	41
42	1	..	2	..	..	2	3	68	2	194	2	..	10	1	..	12	3	..	..	2	4	3	..	1	4	2	1	..	4	..	2	448	42
43	..	..	2	1	..	..	..	46	..	151	5	..	3	..	2	13	4	1	..	2	4	3	..	1	4	2	1	..	2	..	5	314	43
44	..	..	..	1	1	..	..	56	..	240	..	..	3	..	..	3	1	..	..	1	..	..	..	..	2	2	1	..	..	1	..	340	44
45	..	..	3	..	1	..	1	77	..	366	2	..	..	..	..	10	1	..	..	..	1	..	..	1	1	..	..	..	2	..	3	365	45
46	2	..	..	..	..	..	3	15	..	140	..	2	16	..	1	4	..	1	..	1	..	..	..	1	1	3	1	3	1	..	2	243	46
47	..	..	..	..	..	..	..	3	1	157	..	..	1	..	..	9	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	194	47
48	..	..	..	..	..	..	..	2	..	3	69	..	..	..	..	..	..	..	6	..	1	1	..	..	..	..	..	..	..	..	..	91	48
49	..	1	4	1	..	..	..	17	..	18	70	..	11	4	..	16	..	14	1	4	2	2	..	17	1	9	1	..	..	..	3	264	49
50	1	1	..	..	..	..	..	3	..	3	84	1	..	..	..	1	..	4	1	..	..	..	..	3	..	..	1	..	..	..	..	114	50
51	4	..	..	..	..	..	..	..	..	..	..	47	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	53	51
52	..	..	3	..	..	..	..	..	..	15	..	..	219	..	..	6	..	..	..	..	..	..	..	1	..	4	2	..	..	..	2	309	52
53	2	..	..	..	..	..	..	3	..	7	..	..	228	..	1	17	..	..	..	2	1	..	..	..	..	5	4	1	..	..	2	306	53
54	..	..	..	..	..	..	..	..	..	..	..	..	230	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	300	54
55	..	..	..	..	..	..	..	1	..	3	..	..	1	238	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	245	55
56	..	..	..	3	..	..	..	..	..	..	..	1	..	..	194	..	..	..	..	1	..	..	..	..	63	..	1	..	1	..	1	312	56
57	2	..	..	..	..	..	..	65	..	44	1	..	25	..	1	272	4	..	..	..	1	..	..	1	1	3	1	..	15	1	1	336	57
58	1	2	2	2	..	1	..	63	..	21	27	..	21	1	3	220	6	..	..	2	..	..	..	4	15	7	1	..	13	..	..	463	58
59	4	..	..	..	..	..	3	57	..	21	12	13	8	1	..	270	..	..	6	1	2	2	1	4	9	12	1	..	9	..	..	358	59
60	2	4	7	3	3	1	1	47	..	18	18	2	7	1	..	276	1	6	1	2	6	10	1	4	9	12	1	..	3	1	..	511	60
61	1	..	1	..	..	1	..	8	..	32	1	..	7	4	..	30	2	..	..	..	1	1	..	..	1	1	1	..	5	1	4	119	61
62	..	..	..	..	..	..	..	..	..	1	..	..	3	..	..	331	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	338	62
63	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	178	..	..	..	1	..	..	..	3	..	..	..	..	1	189	63
64	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	..	..	..	..	..	..	..	..	..	..	..	..	49	64
65	..	62	13	2	..	..	..	..	2	3	7	..	..	..	15	1	..	..	4	2	271	56	5	..	1	12	1	1	..	1	2	510	65
66	..	7	9	..	1	..	..	7	..	20	13	..	12	3	..	6	..	12	..	..	16	16	..	10	1	4	1	..	6	..	2	282	66
67	..	20	2	1	..	..	..	1	..	5	7	..	3	..	..	..	..	8	..	1	71	11	..	2	1	1	..	1	..	1	..	259	67
68	..	1	2	..	..	..	..	..	12	..	..	..	..	6	1	..	..	..	..	1	282	..	..	..	..	1	..	..	..	..	..	318	68
69	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	266	..	..	..	..	..	..	..	..	..	1	268	69
70	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79	..	..	..	..	..	..	..	..	..	79	70
71	..	..	..	1	..	..	3	..	..	5	..	..	..	..	..	1	..	..	1	..	..	..	102	..	..	..	..	..	..	..	1	128	71
72	..	1	..	..	..	..	..	11	..	11	7	..	1	1	..	6	..	4	..	5	1	..	1	165	1	7	1	..	2	..	..	226	72
73	3	..	..	..	..	..	..	4	..	13	33	..	9	..	..	3	..	4	..	2	1	..	..	167	..	44	1	..	6	..	..	306	73
74	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	56	..	..	..	..	..	56	74
75	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	283	..	..	..	..	2	277	75
76	29	..	1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	19	1	144	2	11	..	3	345	76
77	..	..	1	4	..	3	1	2	..	39	..	..	2	7	..	1	9	1	..	1	..	1	..	..	..	..	..	..	..	160	227	10	77
78	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	145	21	171	78
79	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	208	..	270	79
80	..	..	..	..	..	..	..	..	..	6	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	178	11	228	80
81	..	..	..	..	1	..	..	1	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	153	2	173	81
82	..	..	..	..	..	..	2	7	..	16	6	5	3	..	..	5	2	..	..	1	..	..	..	2	..	7	1	1	..	21	7	257	82
83	..	..	..	..	..	..	14	1	..	4	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	2	223	4	304	83
84	..	..	..	..	..	..	2	1	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44	..	55	84
	567	239	439	93	404	20	96	820	63	2777	442	113	1197	320	247	1468	104	283	112	430	685	206	130	442	362	254	522	34	204	3040	235	25809	

over a thousand students in their schools. Students and graduates of the twenty-six schools in these five states total just over 40 per cent of all students and graduates in the United States. In order, these states are New York, nine schools, 2,864 students, 641 graduates; Pennsylvania, six schools, 2,497 students, 612 graduates; Illinois, four schools, 1,783 students, 445 graduates; Massachusetts, three schools, 1,176 students, 286 graduates, and California, four schools, 1,036 students, 242 graduates.

Seven of the thirty-six states with schools had no graduates, since their schools do not offer the complete medical course. Twelve other states had less than 100 graduates, the lowest being Vermont with 31 graduates from its one medical school.

RESIDENCE OF STUDENTS

The permanent home residence of all students in medical schools of the United States and Canada is indicated in table 11. It is felt that a tabulation of the permanent residence of students may give a better indication of the geographic source of medical students than would a tabulation of the birthplace, since many students, like others, may leave the state of their birth

TABLE 12.—*Enrolment from States in Which There Are no Medical Schools*

	Students Enrolled	No. of Schools	School with Greatest Number from State and Number of Students
Arizona	68	29	Northwestern (7)
Delaware	43	17	Jefferson (10)
Florida	228	35	Emory (44)
Idaho	109	28	Oregon (15)
Maine	88	25	Tufts (18)
Montana	99	37	St. Louis (16)
Nevada	20	13	Northwestern (3) Marquette (3)
New Jersey	820	54	New York Univ. Coll. of Med. (77)
New Mexico	43	14	Baylor (12)
Rhode Island	104	24	Tufts (29)
Washington	302	42	Oregon (63)
Wyoming	34	15	Northwestern (7)
Total	2,004		

and become identified with another state through years of residence. On the other hand, the home residence at the time of admission to a medical school might have been of relatively recent origin in some cases.

Included in the tabulation are the 22,631 students in schools of the United States and 2,386 students in the first four years plus 483 fifth and sixth year students in Canada, totaling 25,500. Students in the fifth or intern year are not included.

Every state in the Union, including the District of Columbia, has 20 or more medical students in the schools listed. Residents of New York provided the greatest number of students, 2,777. Next in order are Pennsylvania 1,868, Illinois 1,375, Ohio 1,197 and California 1,099. These five states supply a total of 8,316 students, or nearly a third of the registration of the eighty-six schools in the United States and Canada. However, these states provide facilities for the training of well over a third of all students in the United States and Canada, since 9,094 students are enrolled in the twenty-six schools in these five states.

Of the 2,869 students in Canadian schools in all six years, 195, or nearly 7 per cent, came from the United States. Most of these, 133, were enrolled at McGill, nearly one third of whose student body of 409 comes from the United States.

There were 202 students from the United States territories and possessions in forty-two schools in the United States and two in Canada. Students from Canada numbered 2,640, of whom 2,604 were in the ten

TABLE 13.—*Resident and Nonresident Students*

	Resident Students	Nonresident Students	Totals
University of Alabama	91	8	99
University of Arkansas	253	31	284
University of California	255	5	260
College of Medical Evangelists	100	219	319
University of Southern California	206	12	218
Stanford University	121	118	239
University of Colorado	199	23	222
Yale University (Connecticut)	53	161	214
Georgetown Univ. (District of Columbia)	29	277	297
George Washington University	82	199	281
Howard University	30	196	226
Emory University (Georgia)	138	88	226
University of Georgia	242	0	242
Loyola University (Illinois)	162	128	290
Northwestern University	208	373	581
Univ. of Chicago, The School of Medicine	100	151	251
University of Illinois	640	21	661
Indiana University	470	16	486
State University of Iowa	304	7	311
University of Kansas	334	21	355
University of Louisville (Kentucky)	167	198	365
Louisiana State University	294	50	344
Tulane University of Louisiana	148	362	510
Johns Hopkins University (Maryland)	63	225	288
University of Maryland	180	193	373
Boston University (Massachusetts)	141	84	225
Harvard Medical School	105	435	540
Tufts College Medical School	305	106	411
University of Michigan	349	140	489
Wayne University	244	13	257
University of Minnesota	451	47	498
University of Mississippi	58	0	58
University of Missouri	75	0	75
St. Louis University	72	392	464
Washington University	130	244	374
Creighton University (Nebraska)	40	201	241
University of Nebraska	327	5	332
Dartmouth Med. School (New Hampshire)	6	40	46
Albany Medical College (New York)	123	32	155
Long Island College of Medicine	302	97	399
University of Buffalo	239	37	276
Columbia University	194	254	448
Cornell University	151	163	314
New York Medical College	240	100	340
New York University	566	139	505
University of Rochester	140	103	243
Syracuse University	157	27	184
University of North Carolina	69	22	91
Duke University	70	194	264
Bowman Gray School of Medicine	84	30	114
University of North Dakota	47	6	53
University of Cincinnati (Ohio)	219	89	308
Western Reserve University	228	78	306
Ohio State University	299	1	300
University of Oklahoma	238	7	245
University of Oregon	184	89	273
Hahnemann Med. College (Pennsylvania)	272	240	512
Jefferson Medical College	328	228	556
Temple University	270	193	463
University of Pennsylvania	278	233	511
Woman's Medical College	30	89	119
University of Pittsburgh	331	5	336
Medical College of South Carolina	178	11	189
University of South Dakota	45	4	49
University of Tennessee	271	239	510
Meharry Medical College	16	226	242
Vanderbilt University	71	138	209
Baylor University (Texas)	282	36	318
University of Texas	393	0	393
University of Utah	79	0	79
University of Vermont	102	31	133
University of Virginia	165	93	258
Medical College of Virginia	167	139	306
West Virginia University	56	0	56
University of Wisconsin	263	14	277
Marquette University	144	201	345
Totals	14,254	8,377	22,631

Canadian schools and 36 in sixteen schools in the United States. Nineteen Canadians attended the College of Medical Evangelists. In no other school in the United States were more than 3 Canadians registered.

Foreign students numbered 235, of whom 167 attended thirty-seven schools in the United States and 68 were enrolled in five Canadian schools. Schools enrolling the largest numbers of foreign students were Harvard 29, Dalhousie 23 and McGill 23.

There are twelve states in the Union in which no medical schools are located. These states are listed in table 12, which also shows the number of students from each state entering medical schools, as well as the number of schools to which these students went. There were 2,004 such students, over half of whom came from New Jersey and Washington. From New Jersey 826 students attended fifty-four medical schools. The greatest number, 77 students, attended New York University College of Medicine. From Washington there were 362 students in forty-two schools; of these, 63 students attended Oregon.

Table 13 gives the resident and nonresident enrolment in each of the seventy-six schools in the United States. More than one third of the students were enrolled in schools outside the state of their residence. The following twenty-three schools enrolled more nonresident students than students from the state in which the school is located:

College of Medical Evangelists	St. Louis
Yale	Washington
Georgetown	Creighton
George Washington	Dartmouth
Howard	Columbia
Northwestern	Cornell
Chicago	Duke
Louisville	Woman's Medical College
Tulane	Meharry
Johns Hopkins	Vanderbilt
Maryland	Marquette
Harvard	

Six schools admitted no students nonresident in the state: Georgia, Mississippi, Missouri, Texas, Utah and West Virginia.

REQUIRED INTERNSHIPS

The medical schools requiring a hospital internship for the M.D. degree are shown in table 14, and licensing boards with this requirement for licensure are shown in table 15.

Six schools in the United States and four in Canada require an internship for graduation. Loyola, Wayne and Marquette have dropped the internship requirement in the past year. Graduates of those schools during the 1942-1943 academic session (see figures in table 5) include students who completed their academic work during the 1942-1943 session and students who have served at least part of the internship.

There were 639 students in the United States and 139 in Canada, a total of 778, reported as completing the fifth or intern year in fulfilment of the internship requirement for the M.D. degree.

TABLE 14.—*Internship Required by Medical Schools*

College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine
University of Alberta Faculty of Medicine [1]
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

1. Effective for 1942-1943 freshmen students.

Although there is a trend in the medical schools toward dropping the internship requirement for the degree, and no schools in the United States have added the requirement in recent years, an internship is required for licensure in twenty-two states and the District of Columbia, Alaska, Hawaii and Puerto Rico. In the past year the requirement of one year's hospital internship had been added for licensure in Montana and Nevada. In Delaware and Pennsylvania the internship requirement has been reduced to nine months for the duration of the war. Some states require the internship of graduates from schools abroad and applicants for reciprocity or endorsement. The licensing boards of Illinois, Michigan, North Dakota, Pennsylvania and Washington require that the internship must be a rotating service, while New Jersey recommends this type of service.

TABLE 15.—*Internship Required by Medical Licensing Boards of All Candidates*

Alabama	Montana	Rhode Island
Alaska	Nevada	South Dakota
Delaware *	New Hampshire	Utah
District of Columbia	New Jersey	Vermont
Hawaii	North Dakota	Washington
Idaho	Oklahoma	West Virginia
Illinois	Oregon	Wisconsin
Iowa	Pennsylvania *	Wyoming
Michigan	Puerto Rico	

Some states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants.
* Internship requirement shortened to nine months for the duration of the war.

A few of the medical schools and licensing boards maintain their own list of hospitals acceptable for intern training, but the list of approved internships compiled by the Council on Medical Education and Hospitals is generally used.

Government restrictions on the use of paper necessitates omission of the Council's list from this presentation. However, copies of the revised list of hospitals approved for internships and residencies will be printed and sent to all approved medical schools, medical libraries, approved hospitals, state licensing bodies, specialty boards and other interested agencies. The list will also be included in the reprint edition of the Educational Number, which has a wide distribution and is available on request.

DISTRIBUTION BY SEX

Students and graduates in the United States and Canada classified according to sex are shown in table 16. The enrolment was 24,183 men and 1,317 women. Graduates numbered 5,448 men and 271 women. All but nine of the eighty-six medical schools reported women students. Seven of these schools (one Canadian) do not admit women students. These are Georgetown, Emory, Harvard, St. Louis, Dartmouth, Jefferson and Queen's. Although North Dakota and South Dakota have been coeducational since their beginning, no women have attended those schools in the past three years. Both of these institutions are schools of basic medical sciences. All other basic science schools (except Dartmouth) report women students.

In the seventy-seven schools there were 1,317 women enrolled. Women students in the United States numbered 1,150 as compared with 21,481 men. In Canada there were 167 women and 2,702 men students. In the one medical college for women there were 119 students and 22 graduates.

TABLE 16.—*Distribution by Sex*

	Students		Graduates	
	Men	Women	Men	Women
University of Alabama	95	4	..	..
University of Arkansas	278	6	67	3
University of California	233	27	49	4
College of Medical Evangelists	301	18	79	3
University of Southern California	213	5	45	0
Stanford University	229	10	57	5
University of Colorado	208	14	47	2
Yale University (Connecticut)	196	18	41	3
Georgetown Univ. (District of Columbia)	297	0	69	0
George Washington University	259	22	65	6
Howard University	214	12	24	3
Emory University (Georgia)	226	0	52	0
University of Georgia	234	8	43	3
Loyola University (Illinois)	276	14	110	4
Northwestern University	563	18	135	3
Univ. of Chicago, The School of Medicine	241	19	41	1
University of Illinois	624	37	141	10
Indiana University	470	16	103	1
State University of Iowa	290	21	60	3
University of Kansas	332	23	85	7
University of Louisville (Kentucky)	357	8	90	2
Louisiana State University	321	23	75	3
Tulane University of Louisiana	490	20	116	5
Johns Hopkins University (Maryland)	252	36	62	10
University of Maryland	354	19	95	3
Boston University (Massachusetts)	263	22	38	6
Harvard Medical School	540	0	148	0
Tufts College Medical School	395	16	92	2
University of Michigan	462	27	92	6
Wayne University	245	12	130	5
University of Minnesota	465	33	106	5
University of Mississippi	53	3	..	..
University of Missouri	73	2	..	..
St. Louis University	464	0	112	0
Washington University	353	21	89	5
Creighton University (Nebraska)	232	9	61	3
University of Nebraska	325	7	72	2
Dartmouth Med. School (New Hampshire)	46	0	..	..
Albany Medical College (New York)	140	15	33	1
Long Island College of Medicine	374	25	84	4
University of Buffalo	261	15	62	4
Columbia University	421	27	87	8
Cornell University	298	16	71	4
New York Medical College	383	37	64	4
New York University	465	40	117	7
University of Rochester	229	14	46	4
Syracuse University	176	8	39	2
University of North Carolina	85	6	..	..
Duke University	256	8	58	3
Bowman Gray School of Medicine	112	2	..	..
University of North Dakota	53	0	..	..
University of Cincinnati (Ohio)	293	15	71	5
Western Reserve University	294	12	66	3
Ohio State University	286	14	64	3
University of Oklahoma	233	12	57	2
University of Oregon	267	6	56	2
Hahnemann Medical College (Pennsylvania)	495	17	126	0
Jefferson Medical College	556	0	142	0
Temple University	429	24	116	7
University of Pennsylvania	499	22	123	7
Woman's Medical College	0	119	0	22
University of Pittsburgh	324	12	70	2
Medical College of South Carolina	184	5	47	1
University of South Dakota	49	0	..	..
University of Tennessee	497	13	109	0
Meharry Medical College	230	12	49	1
Vanderbilt University	304	5	50	2
Baylor University (Texas)	307	11	73	4
University of Texas	372	21	79	8
University of Utah	77	2	..	..
University of Vermont	127	6	31	0
University of Virginia	249	9	53	2
Medical College of Virginia	284	22	65	3
West Virginia University	53	3	..	..
University of Wisconsin	261	16	58	5
Marquette University	337	8	144	6
University of Alberta (Canada)	144	16	30	3
University of Manitoba	210	18	43	7
Dalhousie University	166	5	37	0
Queen's University	279	0	45	0
University of Western Ontario	265	19	27	3
University of Toronto	493	60	97	10
McGill University	387	22	92	2
University of Montreal	226	11	48	5
Laval University	354	10	47	0
University of Saskatchewan	38	6	..	..
Totals	24,183	1,317	5,448	371

Seven medical schools, including one in Canada, each enrolled more than 30 women, with 60 attending Toronto and 40 at New York University.

There were 271 women graduates from sixty-three of the seventy-five four year schools. In the United States there were 241 women graduates and 4,982 men. Canadian schools graduated 30 women and 466 men.

Table 17 shows the distribution of students and graduates by sex over a period of eight years. Women students have not increased in numbers in the past year, so that the small increase in total enrolments, discussed earlier, is entirely due to an increase in the number of men in medical schools.

The percentages of women enrolled and graduating in the United States since 1905 are shown in table 18.

TABLE 17.—*Distribution by Sex in the United States and Canada, 1936-1943*

	Students		Graduates	
Year	Male	Female	Male	Female
1935-1936	24,219	1,254	5,398	268
1936-1937	23,787	1,244	5,624	261
1937-1938	23,234	1,307	5,439	252
1938-1939	22,919	1,293	5,290	285
1939-1940	22,903	1,291	5,450	273
1940-1941	22,853	1,308	5,527	310
1941-1942	23,551	1,333	5,307	305
1942-1943	24,183	1,317	5,448	271

TABLE 18.—*Women in Medicine in the United States*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,073	4.1	219	4.0
1910	997	4.0	116	2.6
1915	592	4.0	92	2.6
1920	618	5.8	122	4.0
1925	910	5.0	204	5.1
1926	905	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5
1931	969	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1,056	4.7	214	4.4
1934	1,020	4.5	211	4.2
1935	1,077	4.7	207	4.1
1936	1,133	5.0	240	4.7
1937	1,115	5.1	236	4.4
1938	1,101	5.4	237	4.8
1939	1,144	5.4	269	5.1
1940	1,145	5.4	253	5.0
1941	1,146	5.4	280	5.3
1942	1,164	5.3	279	5.4
1943	1,150	5.1	241	4.6

For the academic year 1942-1943 the percentage of women enrolled was 5.1, a figure slightly lower than the percentages since 1937. The percentage of graduates who were women was 4.6, which is somewhat smaller than the percentages since 1938.

Recent changes in Army regulations permit the commissioning of women physicians, although at present women students are not included in the Army or Navy medical or premedical programs. Dr. Margaret Craighill, dean of Women's Medical College of Pennsylvania, was the first woman physician to be commissioned in the United States Army. Major Craighill is on leave of absence from the school.

There is a women's division of the Procurement and Assignment Service, through which agency women are cooperating in the relocation of physicians. In addition, women physicians are contributing greatly to the war

effort by carrying heavier loads than ever before, assuming the added responsibilities of men who have left for the armed forces.

At the present time it is not anticipated that women will be included in the A. S. T. or Navy V-12 Programs.

LOAN FUNDS AND SCHOLARSHIPS

Under the accelerated program, the student with limited means faced the problem of financing his education without opportunities for earning money during summer vacations.

Students were able to meet these needs largely because of the generous grants made by the W. K. Kellogg Foundation and loan funds made available by the federal government. Eighty-four schools in the United States and Canada received from the Foundation a total of $977,700 in amounts ranging from $5,000 granted to seven schools of basic medical sciences to $16,000. These timely awards not only assisted deserving and needy medical students but constituted an important contribution to the war effort of the medical schools in carrying out the accelerated program.

Of the $5,000,000 appropriated by Congress for loans to students in various accelerated curriculums training for war participation, the largest single allotment was granted to students in medicine. Through the United States Office of Education 3,628 loans were made to medical students in sixty-four medical schools and schools of basic medical sciences. The total lent was $1,063,573.75 for the fiscal year ended June 30, 1943.

TABLE 19.—*Medical Schools Reporting Part Time, Special and Graduate Students, 1942-1943*

	Part Time	Special	Graduate
University of **Alabama**	8	..	..
University of **California**	..	..	33
Emory University **(Georgia)**	..	1	..
University of Georgia	3	..	..
Loyola University **(Illinois)**	..	3	..
Northwestern University	..	42	78
University of Chicago, The School of Medicine	..	9	..
University of Illinois	..	..	70
Indiana University	..	1	..
State University of **Iowa**	1	..	..
University of **Kansas**	..	9	..
University of Louisville **(Kentucky)**	..	..	1
Louisiana State University	3	1	..
Johns Hopkins University **(Maryland)**	8	12	4
Harvard Medical School **(Massachusetts)**	..	4	..
Tufts College Medical School	..	1	..
University of **Michigan**	13	3	1
Wayne University	10	1	..
University of **Mississippi**	..	4	..
Washington University **(Missouri)**	..	2	..
University of **Nebraska**	..	..	1
Albany Medical College **(New York)**	..	3	..
University of Buffalo	7	1	..
Columbia University	..	5	34
New York Medical College	..	..	7
New York University	..	9	70
Bowman Gray School of Med. **(North Carolina)**	3	..	..
University of Cincinnati **(Ohio)**	..	3	..
Western Reserve University	2	2	..
University of **Oklahoma**	1	2	2
University of **Oregon**	..	2	7
Woman's Medical College **(Pennsylvania)**	2	2	..
University of Pittsburgh	7	..	..
University of **South Dakota**	2	..	..
University of **Tennessee**	..	34	19
Meharry Medical College	..	..	76
University of **Texas**	..	29	3
University of **Virginia**	..	..	8
University of Western Ontario **(Canada)**	..	5	..
University of Toronto	..	..	28
Totals	70	190	434

The Canadian government lent approximately $150,000 to the students in six of the medical schools in that country.

With the transfer of Army and Navy students to an active status in the United States, the need for scholarship and loan aid is no longer acute. A relatively small number of students (perhaps 15 to 20 per cent of the total) will be civilians. Needy students in this group can probably be provided for by the local loan funds available in most schools. In many instances

TABLE 20.—*Graduates with Baccalaureate Degrees*

	Graduates	Degrees
University of **Arkansas**	70	19
University of **California**	53	52
College of Medical Evangelists	82	40
University of Southern California	45	40
Stanford University	62	61
University of **Colorado**	49	38
Yale University **(Connecticut)**	44	44
Georgetown University **(District of Columbia)**	69	66
George Washington University	71	37
Howard University	37	11
Emory University **(Georgia)**	52	36
University of Georgia	46	33
Loyola University **(Illinois)**	114	64
Northwestern University	138	90
University of Chicago, The School of Medicine	42	41
University of Illinois	151	61
Indiana University	104	49
State University of **Iowa**	63	44
University of **Kansas**	92	88
University of Louisville **(Kentucky)**	92	68
Louisiana State University	78	65
Tulane University of Louisiana	121	105
Johns Hopkins University **(Maryland)**	73	65
University of Maryland	98	80
Boston University **(Massachusetts)**	44	43
Harvard Medical School	148	143
Tufts College Medical School	94	93
University of **Michigan**	98	83
Wayne University	135	132
University of **Minnesota**	111	33
St. Louis University **(Missouri)**	112	86
Washington University	94	91
Creighton University **(Nebraska)**	44	24
University of Nebraska	74	41
Albany Medical College **(New York)**	34	34
Long Island College of Medicine	88	80
University of Buffalo	66	50
Columbia University	95	89
Cornell University	75	75
New York Medical College	69	67
New York University	124	118
University of Rochester	50	46
Syracuse University	41	34
Duke University **(North Carolina)**	61	41
University of Cincinnati **(Ohio)**	76	65
Western Reserve University	69	69
Ohio State University	67	62
University of **Oklahoma**	59	36
University of **Oregon**	58	58
Hahnemann Medical College **(Pennsylvania)**	126	107
Jefferson Medical College	142	142
Temple University	120	107
University of Pennsylvania	130	127
Woman's Medical College	22	18
University of Pittsburgh	73	62
Medical College of **South Carolina**	48	34
University of **Tennessee**	109	63
Meharry Medical College	50	48
Vanderbilt University	52	51
Baylor University **(Texas)**	77	45
University of **Texas**	87	63
University of **Vermont**	51	30
University of **Virginia**	55	42
Medical College of Virginia	68	52
University of **Wisconsin**	63	38
Marquette University	150	90
University of Alberta **(Canada)**	33	0
University of Manitoba	50	29
Dalhousie University	37	14
Queen's University	45	5
University of Western Ontario	30	10
University of Toronto	107	29
McGill University	94	80
University of Montreal	53	48
Laval University	47	47
Totals	5,719	4,352

university and college funds set aside for loan purposes have increased in amount in the past year for several reasons. The Kellogg scholarship and loan funds for medical students and the government loan funds for students in several fields have resulted in a conservation of local funds. It should be emphasized that college loan funds would have been entirely inadequate to meet last year's emergency. In addition, large numbers of men in uniform in a variety of curriculums are having their expenses paid by the Army or Navy and need no loans. Finally, generally improved economic conditions have lessened the demand for loans.

There still remain funds for loans to students in the appropriation made by Congress for last year. Of the $5,000,000 allocated for loans in several fields, about $2,000,000 has not been lent. This sum is still available but may be used for loans only to those students who have previously received assistance through this appropriation. No new borrower is eligible for a loan from the fund this year.

PART TIME, SPECIAL AND GRADUATE STUDENTS

Students in these categories, shown in table 19, are included in none of the preceding tabulations. Part time and special students in the past year numbered about half as many as in 1941-1942. Under the accelerated program and the programs for soldiers and sailors in school, part time students are now essentially limited to women and to men with no Army or Navy affiliation. Schools encouraging part time programs for superior students carrying research along with the work of the medical school regret this war casualty but recognize it as a necessity. In fourteen schools in the United States and Canada there were 70 such students in 1942-1943, as compared with last year's 132.

Table 21.—*Fees, 1942-1943*

	Schools
Under $99	3
$100 to 199	4
200 to 299	21
300 to 399	14
400 to 499	10
500 or over	26
Total	88

Special students include those carrying work in such fields as public health, physicians reviewing for specialty board examinations, and students preparing to become physical therapists or laboratory technicians. Curriculums in these and other fields may involve some work in the medical school. There were 190 such special students reported from twenty-six medical schools as compared with 416 in 1941-1942. Forty-two took work at Northwestern, 34 at Tennessee and 29 at Texas. Other schools reported 12 or less.

There were 434 students not candidates for the medical degree pursuing medical subjects in seventeen medical schools in the United States and Canada. A number of these are students enrolled in the graduate school of the University. Over 70 such students were enrolled in each of four schools: Illinois, Northwestern, New York University and Meharry.

GRADUATES WITH BACCALAUREATE DEGREES

At the present time no school in the United States requires a degree for admission, although four schools (Kansas, Dartmouth, Western Reserve and Vanderbilt) in 1942-1943 required the student to earn a degree during the first year in medical school. Two Canadian schools (Montreal and Laval) required the degree for admission. Yet 76 per cent of all graduates from the seventy-five four year schools in the United States and Canada also held baccalaureate degrees, as shown in table 20. This does not include those earning the B.S. in Medicine, which are presented in the next section.

In the United States 4,099 of the 5,223 medical graduates also held baccalaureate degrees, and in Canada 253 of the 496 medical graduates also held the additional degree. The percentage of graduates in Canada holding both degrees was approximately half that of the graduates of medical schools in the United States. All the graduates of the following seven schools held both degrees: Yale, Albany, Cornell, Western Reserve, Oregon, Jefferson and Laval. Three schools having a degree requirement graduated 10 students with less than their stated college education. None of the graduates of Alberta held the baccalaureate degree.

GRADUATES WITH THE B.S. IN MEDICINE

Certain graduates of twenty-seven medical schools in the United States and 1 in Canada received the Bachelor of Science degree in Medicine. There were 416 such degrees awarded in the United States and 2 in Canada, a total of 418. The largest single group to receive the degree were 87 graduates of Illinois. Minnesota awarded 74 degrees and Indiana 46. Other schools granted 34 or less and eighteen schools granted less than 10 each.

FEES

The eighty-six medical schools and schools of basic medical sciences in the United States and Canada have been arranged in six groups in table 21 according to the tuition fees charged resident students for the session of 1942-1943. The data are based on the average tuition fee charged for the complete medical course and includes minor charges as for matriculation, breakage, diploma and graduation.

Three medical schools, Oklahoma, Texas and West Virginia, charged less than $99 for the year. Twenty-six schools, most of which are in the Eastern section of the country, had fees of $500 or more: College of Medical Evangelists, Yale, George Washington, Georgetown, Loyola, Tulane, Johns Hopkins, Maryland, Tufts, Mississippi, St. Louis, Washington, Albany, Columbia, Cornell, Long Island, New York Medical, New York University, Syracuse, Buffalo, Rochester, Cincinnati, Western Reserve, Hahnemann, Pennsylvania and Pittsburgh. Mississippi is the only addition to this group in the last year. The total number in the group has not changed, since Rush is no longer in the list.

The trend toward increases in tuition continues. The average resident fees charged by medical schools in the United States in the past four years, ending with the year 1942-1943, have been $378, $386, $395 and $407.

Thirty-one schools in the United States and six in Canada make an additional charge for nonresidents. These sums very considerably in amount. Toronto charges $5 for first year students and $10 for others. Four schools charge $50 or less annually. Louisiana and Michigan charge $400 annually. South Carolina charges $420.50 for each of its two years, and Texas has a $600 fee for each of the third and fourth years.

DESCRIPTION OF MEDICAL SCHOOLS

ARKANSAS

Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, 1209 McAlmont Street.—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 30 professors and 112 lecturers and instructors, a total of 142. The curriculum covers four sessions of nine months each. Entrance requirements are two years of collegiate work. The B.S. Degree is conferred at the end of the second year. An accelerated program was adopted July 1, 1943, involving the admittance and graduation of a class approximately every nine months. The fees for the four years for residents of Arkansas are $280 per year; nonresidents are charged $225 additional each year. The registration for 1942-1943 was 284; graduates, 70. The present session began July 1, 1943, and ends March 27, 1944. The Dean is Byron L. Robinson, M.D.

CALIFORNIA

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley; Medical Center, San Francisco.—Organized in 1864 as the Toland Medical College. The first class graduated in 1864. In 1873 it became the Medical Department of the University of California. In 1909, by legislative enactment, the College of Medicine of the University of Southern California, at Los Angeles, became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica, and therapeutics were provided. Coeducational since organization. Three years of collegiate work are required for admission. For the emergency students may be accepted who have completed premedical work in two years or six terms. The work of the first year is given at Berkeley and that of the last three years at San Francisco. An accelerated program has been adopted consisting of three terms of sixteen weeks in each academic year. The medical course may now be completed in two and two-thirds years. The faculty is composed of 171 professors and 306 associates and assistants, a total of 477. The fees average $318 per academic year; nonresidents are charged $250 additional each year. The registration for 1942-1943 was 260; graduates, 53. The present session began February 11, 1943, and will end October 23, 1943. The subsequent session begins October 28, 1943. The Dean is Francis S. Smyth, M.D., San Francisco.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS, Loma Linda; Boyle and Michigan Avenues, Los Angeles.—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda; the clinical departments at Los Angeles. Coeducational since organization. Three years of collegiate work are required for admission. The faculty is composed of 45 professors and 350 associate professors, assistant professors, instructors and assistants—making a total of 395. The course covers a period of three years of four nine-month academic sessions and an additional twelve-month internship in an approved hospital. The total fees are, respectively, $602, $590, $612 and $617. The registration for 1942-1943 was 319; graduates, 82. The present session for the sophomore, junior, and senior sessions began April 4, 1943 and will end December 1944; the freshman session will begin July 1, 1943 and will end March 1944. The subsequent junior and senior sessions begin January 1944; freshmen and sophomore sessions begin April 1944. The President is Walter E. Macpherson, M.D., Los Angeles. The Dean in Newton Evans, M.D., Loma Linda. The Assistant Dean is W. F. Norwood, Ph.D., Los Angeles.

Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE, 3551 University Avenue.—Organized in 1895 as the University of Southern California College of Medicine. First class graduated in 1898. In 1908 it became the Los Angeles Medical Department of the University of California. In 1909 the College of Physicians and Surgeons, established in 1904, became the Medical Department of the University of Southern California. Its activities were suspended in 1920; reorganized in May 1928, under present title. During present national emergency will operate the year round on accelerated three term basis, each term continuing for sixteen weeks. The 1943 entering class began instruction on June 28, 1943. Subsequent entering classes will begin at 8-month intervals during the emergency. The faculty consists of 156 professors and 239 instructors, assistants, and others—a total of 395, 129 of whom are now on active duty with the armed forces. An internship is required for graduation. Coeducational since organization. Annual fees (1½ academic years) amount to $842. The registration for 1942-1943 was 218; graduates, 45. The present session began June 28, 1943 and will end January 15, 1944. The Dean is Burrell O. Raulston, M.D.

Stanford University-San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE, University Campus, Stanford University; 2398 Sacramento Street, San Francisco. The main buildings are in San Francisco. The laboratories of anatomy, bacteriology and experimental pathology, chemistry, and physiology are located on the campus at Stanford University, which is thirty miles southeast of San Francisco adjoining the City of Palo Alto. The post office is Stanford University. Organized in 1908, when by agreement the interests of Cooper Medical College were taken over. The first class graduated in 1913. Coeducational since organization. The faculty consists of 138 professors and 190 lecturers, assistants and others, a total of 328. Three years of collegiate work are required for admission. The quarter plan is in operation admitting one class each year. An internship is a requirement for graduation. The fees for the four years, respectively, are $474, $438, $418 and $418. The registration for 1942-1943 was 239; graduates, 62. During 1943-1944 the quarters begin June 28, October 11, January 10, April 12, July 10. The Dean is Loren Roscoe Chandler, M.D.

COLORADO

Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, 4200 East Ninth Avenue.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. Coeducational since organization. The faculty is composed of 57 professors and 130 lecturers, instructors and assistants, a total of 187. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The entrance requirements for nonmilitary students are three years of collegiate work. The fees average $289 per academic year. Nonresidents are charged $245 additional each year. The registration for 1942-1943 was 222; graduates, 49. The present session began March 29, 1943, and will end December 1943. The subsequent session will begin January 3, 1944. The Dean is Maurice H. Rees, M.D.

CONNECTICUT

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE, 333 Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrended such authority as had been granted by the first charter. In 1887, Yale College became Yale University. Coeducational since 1916. The faculty consists of 199 professors and 187 lecturers and assistants, a total of 386. Of this number, 23 are on leave of absence for war service and about 75 other staff members are in the armed forces. The requirements for admission are two years of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average $506 per academic year. The registration for 1942-1943 was 214; graduates, 44. The present session began April 5, 1943, and will end December 18, 1943. The subsequent session will begin December 27, 1943. The Dean is Francis G. Blake, M.D.

DISTRICT OF COLUMBIA

Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 3900 Reservoir Road, N.W.—Organized in 1851. First class graduated in 1852. The faculty is composed of 61 professors, 42 associate professors, 13 assistant professors, 18 adjunct professors and 146 instructors, a total of 280, of whom 65 are on military leave. Minimum requirements for admission are the complete premedical Army Specialized Training Program or Navy College Training Program. Civilian students must finish at least two full years of premedical work in an approved college of arts and sciences. The accelerated program permits admission and graduation of a class every nine months. The fees average $520 per academic year. The registration for 1942-1943 was 297; graduates, 69. The present session began March 15, 1943, and will end December 15, 1943. The subsequent session begins January 3, 1944. The Dean is David V. McCauley, S.J., Ph.D.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, 1335 H Street, N.W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except in 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an Act of Congress, the title of George Washington University was granted to the institution. Coeducational since 1884. The faculty is composed of 81 professors and 150 instructors, demonstrators and assistants, a total of 231. Sixty semester hours of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average $350 per academic year. The registration for 1942-1943 was 281; graduates, 71. The present session began March 1, 1943, and will end November 6, 1943. The subsequent session will begin November 22, 1943. The Dean is Walter A. Bloedorn, M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE, Fifth and W Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 41 professors and 61 instructors and assistants, a total of 102. The admission requirements are at least two years of collegiate work. The course covers four years of thirty-three weeks each. The fees are, respectively, $269, $269, $259 and $266. Registration for 1942-1943 was 226; graduates, 27. The curriculum was accelerated with the beginning class of September 1942. Classes will be admitted every 9 months as follows: June 1943, March 1944, January 1945. The 1943-1944 session began June 12, 1943 and ends March 18, 1944. The Dean is John Wesley Lawlah, M.D.

GEORGIA

Atlanta

Emory University School of Medicine, 50 Armstrong Street—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of collegiate work are required for admission. The course of study is four academic years of thirty-two weeks each. By the use of the long summer vacation as a teaching quarter, the time required for the completion of these four academic years has been reduced from four to three calendar years. This is in line with the accelerated program adopted by most medical schools during the present emergency. The fees for each of the four academic years are $357. The registration for 1942-1943 was 226; graduates, 52. Classes this year began on March 23, 1943 and will end December 23, 1943. The subsequent session will begin January 3, 1944 (tentative). The Dean is Russell H. Oppenheimer, M.D.

Augusta

University of Georgia School of Medicine, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. After 1873 it was known as the Medical Department of the University of Georgia. On July 1, 1933, the name was changed to the University of Georgia School of Medicine. Property transferred to the University in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 62 professors and 24 assistants, a total of 86. Three years of collegiate work are required for admission (except that for the duration of the present war the minimum requirement will be two years). An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average $225 per academic year for residents of Georgia; nonresidents are not admitted. The registration for 1942-1943 was 242; graduates, 46. The present session began April 7, 1943, and will end December 20, 1943. The subsequent session will begin January 3, 1944. The Dean is G. Lombard Kelly, M.D.

ILLINOIS

Chicago

Loyola University School of Medicine, 706 South Wolcott Avenue.—Organized in 1915 by acquisition of Bennett Medical College, which had been organized in 1869. Facilities enlarged upon by acquisition of Chicago College of Medicine and Surgery, faculties in basic medical sciences put on full time basis and present title assumed in 1917. Operated as an organic part of Loyola University. Coeducational since organization. The faculty is composed of 38 full time professors and 288 associate and assistant professors, associates, instructors and assistants, a total of 326. Ninety semester hours of collegiate work are required for admission. The fees average $515 per academic year. The registration for 1942-1943 was 290; graduates, 114. The present session for all classes began on April 19, 1943 and will end December 31, 1943. The subsequent session will begin January 3, 1944. The Dean is Francis J. Braceland, M.D.

Northwestern University Medical School, 303 East Chicago Avenue.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises 31 professors, 139 associate and assistant professors and 493 associates, instructors and clinical assistants, a total of 663. For the duration of the war the requirement for admission is two years of collegiate work. The B.S. in medicine degree may be conferred before the end of the sophomore year. An accelerated program has been adopted involving the acceptance of a class every nine months. A hospital internship is required for graduation. The total fees are $414 each year. The registration for 1942-1943 was 581; graduates, 138. The present session began March 29, 1943 and will end December 18, 1943. The subsequent session will begin December 28, 1943. The Dean is J. Roscoe Miller, M.D.

University of Chicago, The School of Medicine, Fifty-Eighth Street and Ellis Avenue.—Organized in 1924, as a part of the Ogden Graduate School of Science of the University of Chicago. In 1932, when the University of Chicago reorganized its departments, the medical departments were included in the Biological Sciences Division. The work of the first two years in the medical courses has been given on the University Quadrangles since 1899; but the last two years were offered only at Rush Medical College which was affiliated with the university until 1927 when actual work in the clinical departments on the campus began. After that time, candidates for the degree of Doctor of Medicine could take the work of the first two years on the campus and the work of the third and fourth years either on the campus or at the Rush Medical College. In June 1940 Rush Medical College became affiliated with the University of Illinois College of Medicine. All undergraduate instruction is now given only on the campus of the University of Chicago. The faculty of the School of Medicine is composed of 90 professors, 125 associates, instructors and others, a total of 215. The requirements for admission are 80 semester hours of collegiate work or completion of the Army or Navy premedical program, whether or not the applicant is actually in the Army or Navy. The B.S. degree may be obtained during the second year. The curriculum covers twelve quarters of work. Sixty-five students are admitted to the first year class every nine months. The tuition fee averages $450. The registration for 1942-1943 was 251; graduates, 42. During the academic year 1943-1944 the quarters will begin June 22, September 28, January 3 and March 27. Classes will be admitted only in January and September 1944. All correspondence relating to general policies should be addressed to W. H. Taliaferro, Ph.D., Dean of the Division of Biological Sciences, or to A. C. Bachmeyer, M.D., Associate Dean, and that pertaining to student affairs to B. C. H. Harvey, M.D., Dean of Medical Students.

University of Illinois College of Medicine, 1853 West Polk Street.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was cancelled in June 1912, and was restored in March 1913, when the present title was assumed. Coeducational since 1898. Two years of collegiate work are required for admission. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The B.S. in medicine degree is conferred at the end of the second year. The faculty is composed of 165 professors and 394 associates, instructors and assistants, a total of 559. The fees for residents of Illinois average $288 per academic year; nonresidents pay an additional fee of $150. The registration for 1942-1943 was 661; graduates, 151. The present session for juniors and seniors began March 29, 1943 and will end December 17, 1943. Freshmen and sophomores enrolled June 28, 1943 and will complete the year March 25, 1944. The Dean is David J. Davis, M.D., until September 1, 1943; Raymond B. Allen, M.D., after September 1, 1943.

INDIANA

Bloomington-Indianapolis

Indiana University School of Medicine, Bloomington; 1040 West Michigan Street, Indianapolis.—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The faculty consists of 334 professors, lecturers, associates and assistants. The B.S. degree in medicine is conferred. The school has been on an all-time program since May 11, 1942. Each calendar year is divided into three terms. The work given in two terms is equivalent to the work formerly given in a year. The work of the first two terms is given at Bloomington; the remainder of the work at Indianapolis. Regular fee for two terms of work is $217 for residents of Indiana and $422 for nonresidents. The registration for the session 1942 was 486; graduates, 104. The next regular class will start work on September 6, 1943. The Dean is Willis D. Gatch, M.D., Indianapolis.

IOWA

Iowa City

State University of Iowa College of Medicine, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. The faculty is made up of 56 professors, 74 lecturers, demonstrators and assistants, a total of 130. Three years of collegiate work are required for admission. The B.A. degree in the combined course of liberal arts and medicine is conferred. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The tuition fee is $226 each year for residents of Iowa and $490 for nonresidents. The registration for 1942-1943 was 311; graduates, 63. The present session began March 1, 1943 and will end December 18, 1943. The subsequent session begins January 3, 1944. The Dean is Ewen Murchison MacEwen, M.D.

KANSAS

Lawrence-Kansas City

University of Kansas School of Medicine, Lawrence; 39th Street and Rainbow Boulevard, Kansas City.—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. Absorbed Kansas Medical College in 1913. The first class graduated in 1906. The clinical courses are given at Kansas City. Coeducational since 1880. The faculty includes 78 professors and 136 instructors, assistants and others, a total of 214. The requirement for admission is three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees for residents of the state average $229.50; nonresidents $439.50. The registration for 1942-1943 was 355; graduates, 92. The present session for freshmen began May 24, 1943. Upper classmen were enrolled May 19, 1943 and will complete the year January 27, 1944. The Dean is H. R. Wahl, M.D., Kansas City.

KENTUCKY

Louisville

University of Louisville School of Medicine, 101 West Chestnut Street.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louis-

ville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908, the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. in 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of collegiate work are the minimum requirement for admission. Preference is given applicants with a degree or three college years leading to a degree. The faculty numbers 72 professors, and 76 assistants, instructors and others, a total of 148. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. Fees average $452 per academic year. The registration for 1942-1943 was 365; graduates, 92. The present session began April 1, 1943 and will end December 4, 1943. The subsequent session will begin January 5, 1944. The Dean is John Walker Moore, M.D.

LOUISIANA

New Orleans

LOUISIANA STATE UNIVERSITY SCHOOL OF MEDICINE, 1542 Tulane Avenue.—Organized January 1931 as Louisiana State University Medical Center. Present title in 1939. Coeducational. First session October 1931, with students of first and third year. Faculty comprises 25 professors and 103 associate professors, assistant professors, instructors, and assistants, a total of 128. Course covers four sessions of not less than 32 weeks each. Under, the accelerated program adopted for the duration of the war, a first year class will be admitted each nine months, and the entire course will be be completed within a period of three years. A minimum of two years' collegiate work is required for admission. Total fees, $134 each year for residents of Louisiana; additional tuition of $400 each year for nonresidents. The registration for 1942-1943 was 344; graduates, 78. The present session began March 11, 1943 and will end December 15, 1943. The Dean is B. I. Burns, M.D.

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, 1430 Tulane Avenue.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. The faculty comprises 31 professors and 220 associate and assistant professors, instructors and assistants, a total of 251. An accelerated program has been adopted involving the admittance of a class at the beginning of each ninth month, and the graduation of a class approximately every eight months. A minimum of two years of collegiate work is required for admission. Total fees average $547 per academic year. The registration for 1942-1943 was 510; graduates, 121. The present session began July 1, 1943 and will end February 12, 1944. The Dean is Hiram W. Kostmayer, M.D.

MARYLAND

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, 710 North Washington Street.—The nucleus of a Medical Faculty was constituted in 1883. Systematic postgraduate instruction in pathology and bacteriology was begun in 1886. School was fully organized and opened in 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 70 professors and 397 instructors, assistants and others, a total of 467. The requirement for admission is temporarily two college years. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average $627 per academic year. The registration for 1942-1943 was 288; graduates, 73. The present session began March 1, 1943 and will end November 25, 1943. The subsequent class will begin November 29, 1943. The Dean is Alan M. Chesney, M.D.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged with it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 52 professors and 332 associate and assistant professors and others, a total of 384, of which 137 are now absent serving with the Armed Forces. Premedical college training reduced from three to two years for the duration of the war. The medical school is now running under an accelerated program for the duration of the war, and requires the admission of a freshman class approximately every nine months. The tuition fees average $501 for residents of the state; for nonresidents approximately $150 additional. The registration for 1942-1943 session was 373; graduates, 98. Present session began April 8, 1943 and will end December 23, 1943. The next subsequent session will begin January 13, 1944. The Dean is Robert U. Patterson, M.D.

MASSACHUSETTS

Boston

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Two years of collegiate work are required for admission. The faculty includes 22 professors, 207 associates and others, a total of 229. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Total fees average $480 per year. The registration for 1942-1943 was 225; graduates, 44. The present session began March 31, 1943 and will end December 7, 1943 for first year students, December 14, 1943 second and third year students and December 11, 1943 for fourth year students. The subsequent session begins December 31, 1943. The Dean is Bennett F. Avery, M.D.

HARVARD MEDICAL SCHOOL, 25 Shattuck Street.—Organized in 1782. The first class graduated in 1788. It has a faculty of 205 members, and 480 other instructors and assistants, a total of 685. Two years of collegiate work are required for admission. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average $420, plus $5 the first year for matriculation. The registration for 1942-1943 was 540; graduates, 148. The present session began March 8, 1943 and will end December 18, 1943. The subsequent session begins January 3, 1944. The Dean is C. Sidney Burwell, M.D.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 107 professors and 335 assistants, lecturers and others, a total of 442. At least two academic years of college study are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees for each of the four years, respectively, are $512, $507, $507 and $517. The registration for 1942-1943 was 411; graduates, 94. The present session began April 7, 1943 and will end December 18, 1943. The subsequent class will begin about January 1, 1944. The Acting Dean is Dwight O'Hara, M.D.

MICHIGAN

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 29 professors, 18 associate professors, 32 assistant professors, 100 assistants, instructors and lecturers; a total of 179. The entrance requirements are ninety semester hours. An accelerated program has been adopted involving the admittance of a class annually and the graduation of a class every nine months. The fees average $250 per academic year; for nonresidents $400 a year. The registration for 1942-1943 was 498; graduates, 98. The present session for upper classes began June 28, 1943 and will end February 19, 1944. Freshmen will enrol October 25, 1943. The Dean is A. C. Furstenberg, M.D.

Detroit

WAYNE UNIVERSITY COLLEGE OF MEDICINE, 1516 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of the Detroit Medical College (organized in 1868) and the Michigan College of Medicine (organized in 1879). Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1869. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by action of the Detroit Board of Education to Wayne University College of Medicine, as a part of the program of consolidation of the Detroit city colleges into a university system. Coeducational since 1917. Entrance requirement is 60 semester hours from an accredited college or university for the duration of the war. The faculty consists of 46 professors, 302 lecturers and others, a total of 348. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average $325 for Wayne County residents, and for nonresidents, $425. The registration for 1942-1943 was 257; graduates, 135. The present session began April 5, 1943 and will end December 18, 1943. The Dean is Edgar H. Norris, M.D.

MINNESOTA

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 214 professors, of whom 79 are on full time appointment and 135 on part time, and 143 instructors, 35 of whom are on full time appointment and 108 on part time, a total of 357. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The entrance requirements are three years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative and quantitative analysis, organic and physical chemistry; eight credits of general zoology and genetics and eugenics; four credits of general psychology, and a reading knowledge of scientific German, with a "C" average in all subjects and in the sciences. For the duration of the war entrance requirements have been reduced to two years of college work, and physical chemistry, genetics and eugenics, psychology, and German may be waived by the admission committee. Students are required to meet the requirements for a degree of B.S. or B.A. before receiving the degree of Bachelor of Medicine (M.B.), which is granted at the end of the course. The M.D. degree is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Total fees are $252 per academic year for residents and $477 for nonresidents. The registration for 1942-1943 was 498; graduates, 111. The academic year 1943 began March 29 and will end December 16, 1943. The subsequent class will begin January 4, 1944. The Dean is Harold S. Diehl, M.D.

MISSOURI

St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard. Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion-Sims Medical College, organized in 1890, and

Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 79 professors and 291 instructors and assistants, a total of 370. The completion of three years of college study is the minimum admission requirement but students presenting meritorious credits in excess of the minimum are accepted by preference. During the war period the minimal entrance requirements, however, are two years of college with 60 semester hours of credit. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average $536 per academic year. The registration for 1942-1943 was 464; graduates, 112. The present session for freshmen began February 23 and for upper classmen March 2, 1943 and will end November 28, 1944. The subsequent session begins November 29, 1944. The Dean is Alphonse M. Schwitalla, S.J., Ph.D.

Washington University School of Medicine, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1918. The faculty comprises 142 professors and 303 lecturers, instructors and others, a total of 445. For the duration of the war the entrance requirement has been reduced to two years of collegiate work. The B.S. degree in medicine is conferred at the end of the third or fourth year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average $526. The registration for 1942-1943 was 374; graduates, 94. The present session began March 29, 1943 and will end December 18, 1943. The subsequent session begins January 3, 1944. The Dean is Philip A. Shaffer, Ph.D.

NEBRASKA

Omaha

Creighton University School of Medicine, 306 North Fourteenth Street.—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 79 professors and 76 instructors, lecturers and assistants, a total of 155. Sixty-four semester hours of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average $374 per academic year and $100 additional each year for students who have not taken the major part of their work at Creighton University. The registration for 1942-1943 was 241; graduates, 44. The present session began March 18, 1943 and will end December 20, 1943. The subsequent session will begin January 4, 1944. The Dean is Charles M. Wilhelmj, M.D.

University of Nebraska College of Medicine, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913, when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 78 professors and 54 lecturers and instructors, a total of 132. Two years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The B.S. degree in medicine is conferred at the end of the second year. The fees average $250 per academic year. The registration for 1942-1943 was 332; graduates, 74. The present session began March 26, 1943 and will end December 18, 1943. The subsequent session will begin January 3, 1944. The Dean is C. W. M. Poynter, M.D.

NEW YORK

Albany

Albany Medical College, 47 New Scotland Avenue.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The faculty is composed of 93 professors and 118 instructors, assistants and others, a total of 211. For the duration students who have completed two years of college and who have the proper specific qualifications will be admitted. This change in the requirements for admission has been instituted for the duration of the present national emergency. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average $532 per academic year. The registration for 1942-1943 was 155; graduates, 34. The present session began March 29, 1943 and will end December 24, 1943. The subsequent session will begin January 3, 1944. The Dean is R. S. Cunningham, M.D.

Brooklyn

Long Island College of Medicine, 350 Henry Street.—Chartered in 1930, was originally organized in 1858 as The Long Island College Hospital. From the collegiate department the first class was graduated in 1860 and the last class in 1930. The first class of the Long Island College of Medicine was graduated in 1931. It is coeducational. It has a faculty of 131 professors, associate, assistant, clinical and assistant clinical professors, and 196 lecturers, associates, instructors, assistants, and others, a total of 327. For the duration of the war two years of collegiate work, including specified courses, are required for admission. The medical course covers four academic years but is being given in three calendar years for the duration of the war. The fees average $610 per academic year. The registration for 1942-1943 was 399; graduates, 88. The present session began March 29, 1943 and will end December 23, 1943. The subsequent session begins January 3, 1944. The President and Dean is Jean Alonzo Curran, M.D.

Buffalo

University of Buffalo School of Medicine, 24 High Street.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 99 professors and 177 associates, assistants and others, a total of 276. The minimum requirement for admission is two years of collegiate work including certain prescribed science subjects. An accelerated program has been adopted admitting a freshman class every nine months. The fees for the entire course are $2,000. The registration for 1942-1943 was 276; graduates, 66. The present session for freshmen began July 6, 1943 and ends March 25, 1944. The subsequent session for freshmen begins April 3, 1944. The Dean is Edward W. Koch, M.D.

New York

Columbia University College of Physicians and Surgeons, 630 West One Hundred and Sixty-Eighth Street.—The medical faculty of Columbia College, then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 290 professors and 614 instructors, demonstrators and others, a total of 904. Two years of collegiate work are required for admission. During the war, the school will remain in session throughout the year and entering classes will be enrolled at intervals of approximately nine months. Fees average $538 per academic year. The registration for 1942-1943 was 448; graduates, 95. The present session began March 22, 1943 and will end December 23, 1943. The subsequent session begins January 1, 1944. The Dean is Willard C. Rappleye, M.D.

New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869; the title New York Homeopathic Medical College and Hospital in 1887; the title New York Homeopathic Medical College and Flower Hospital in 1908; the title New York Medical College and Flower Hospital in 1936; the present title of New York Medical College, Flower and Fifth Avenue Hospitals, June 22, 1938. The first class graduated in 1861. Coeducational since 1919. Two years of college work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. It has a faculty of 67 professors and associate professors, 48 assistant professors, 291 lecturers and assistants, a total of 406. The fees average $663 per academic year. The registration for 1942-1943 was 340; graduates, 68. The present session began March 29, 1943 and will end Dec. 20, 1943. The subsequent session begins January 3, 1944. The President and Dean is J. A. W. Hetrick, M.D.

New York University College of Medicine, 477 First Avenue.—The Medical Department of New York University (then called the University of the City of New York) was organized in 1841. In 1898 it united with the Bellevue Hospital Medical College, organized in 1861, under the name of University and Bellevue Hospital Medical College. In 1935 the name was changed to New York University College of Medicine. Coeducational since 1919. The faculty is composed of 203 professors, associate, assistant, clinical and assistant clinical professors and 348 lecturers, instructors and others, a total of 551. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Entrance requirements are two full years of study in an approved college of arts and sciences. The fees average $600 per academic session. The registration for 1942-1943 was 505; graduates, 124. The present session began April 5, 1943 and will end in December 1943. The subsequent session begins January 3, 1944. The Acting Dean is Donal Sheehan, M.D.

Cornell University Medical College, 1300 York Avenue.—Organized in 1898. Coeducational since organization. First year teaching was given formerly to approximately one third of the class at Ithaca but in 1938 this division was discontinued and all instruction is now in New York City. The faculty is composed of 171 professors and 354 instructors, assistants and others, a total of 525. All students admitted are from approved colleges for premedical training. In the past students accepted have been holders of a college degree or candidates for the degree on successful completion of the first year of medicine. A thorough premedical training is still regarded as a desirable attainment but for the duration of the present emergency students may be accepted who have completed only two years of college. An accelerated program has been adopted whereby a class graduates and a new class enters every nine months. The fees average $622 per academic year. The registration for 1942-1943 was 314; graduates, 75. The present session began April 5, 1943. The subsequent session will begin January 3, 1944. The Dean is Joseph C. Hinsey, Ph.D.

Rochester

University of Rochester School of Medicine and Dentistry, 260 Crittenden Boulevard.—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. The faculty is composed of 74 professors, 207 lecturers, assistants, instructors and others, a total of 281. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Three years of collegiate work are required for admis-

sion. The fees average $500 per academic year. The registration for 1942-1943 was 243; graduates, 50. The present session began March 29, 1943 and will end December 18, 1943. The subsequent session begins January 3, 1944. The Dean is George Hoyt Whipple, M.D.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 766 Irving Avenue.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 64 professors and 192 associate and assistant professors, lecturers and instructors; a total of 256. Two years of a recognized college course are required for admission. An accelerated program has been adopted involving the completion of the four year course in three years; admitting a freshman class every nine months. The fees average $600 per academic year. The enrolment for 1942-1943 was 184; graduates, 41. The present session for upper classmen began April 5, 1943 and will end December 1943 and for freshmen July 1943. The subsequent session will begin in April 1944. The Dean is H. G. Weiskotten, M.D.

NORTH CAROLINA

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1925. The first class was admitted October 1, 1930. Coeducational. The faculty is composed of 11 professors and 213 associate and assistant professors, lecturers, instructors and assistants, a total of 224. The premedical requirement is two years of college work. The academic year consists of four quarters of eleven weeks each, which must be taken consecutively, with graduation in three calendar years. The B.S. degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. Active duty with the Army, Navy or Public Health Service can replace the second year. The fees are $450 for each year of three quarters. The registration for 1942-1943 was 264; graduates, 61. During 1943-1944 the quarters begin July 1, September 27, January 3, March 31 and end September 22, December 20, March 26 and June 22. The first year students will be enrolled January 3, 1944 and September 29, 1944. The Dean is Wilburt C. Davison, M.D.

OHIO

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden and Bethesda Avenues.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged with the University when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational since organization. Candidates for admission to the freshman class will be accepted in accordance with the Army and Navy plan for the training of medical students for the duration of the war. Liberal Arts students of the University of Cincinnati may sign up for the seven year combined Liberal Arts and Medical program. The B.S. degree is granted on the joint recommendation of the faculties of the College of Liberal Arts and Medicine at the end of the first medical year. The faculty consists of 112 professors, associate and assistant professors, 350 instructors, etc., a total of 462. During the period of the war emergency the college will operate on an accelerated program. A new class will be admitted every nine months. Each session will consist of thirty-six weeks of work and there will be a short recess between the major sessions. The present session began March 22, 1943 and will end December 1943. The subsequent class will be admitted December 1943. Tuition is as follows: For legal residents of Cincinnati $485 a year plus breakage fees ($50 additional for those not legal residents). The registration for 1942-1943 was 308; graduates, 76. The Dean is Stanley Dorst, M.D.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 2109 Adelbert Road.—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College. The first class graduated in 1844 (a celebration of the Centenary is planned for October 27, 1943). The school assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 101 professors and 276 lecturers, assistants and others, a total of 377. The curriculum covers four scholastic years of 38 weeks each, including four weeks of intermission. During the war emergency, these will be continuous, so that the entire course will be completed in 150 weeks. For the duration of the war, the entrance requirements have been reduced to two years of college work. The fees average $529 per academic year. The registration for 1942-1943 was 306; graduates, 69. The present session began March 1, 1943 and will end October 28, 1943. The subsequent session begins November 22, 1943. The Dean is Torald Sollmann, M.D.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh Avenues.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willoughby Medical College, which was chartered March 3, 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 92 professors, associate and assistant professors, 119 lecturers, instructors, demonstrators and others, a total of 212, of whom 79 are on military leave. Two years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. Tuition fees average $318 per academic year and $150 additional for nonresidents. The registration for 1942-1943 was 300; graduates, 67. The present session began March 30, 1943 and will end December 17, 1943. The subsequent session will begin January 4, 1944. The Acting Dean is Rollo C. Baker, Ph.D.

OKLAHOMA

Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE, 801 East Thirteenth Street.—Organized in 1900. Until 1910 gave only the first two years of the medical course at Norman, Okla., after which a clinical department was established at Oklahoma City by taking over the Medical School of Epworth University. The first class graduated in 1911. Coeducational since organization. A new medical school building and a second teaching hospital became available in 1928, and since September of that year the entire four year course has been given in Oklahoma City. It has a faculty of 28 professors, 24 associate professors, 26 assistant professors and 120 associates, lecturers, visiting lecturers, instructors and assistants, a total of 198. Two years of college work are a prerequisite for admission during the war. The course covers four years of nine months each. An accelerated program was adopted beginning May 10, 1943 involving admission and graduation of a class every nine months. Fees: $50 "maintenance and incidental fee" per semester. Other annual course fees average $128, $95, $53 and $58, in the order given, beginning with the freshman year. For students not residents of Oklahoma there is a tuition charge of $350 a year, plus laboratory and course fees as indicated for the different years. The registration for 1942-1943 was 245; graduates, 59. The present session began May 10, 1943 and ends in December 1943. The next session begins January 6, 1944 and ends in September 1944. The Dean is Tom Lowry, M.D. The Acting Dean is Harold A. Shoemaker, Ph.D.

OREGON

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL, Marquam Hill.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 91 professors and 164 lecturers, assistants and others, a total of 255. Entrance requirements are 82 semester hours of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees are, respectively, $380, $375, $370 and $376 for residents of Oregon, and $60 a year additional for nonresidents. The registration for 1942-1943 was 273; graduates, 58. The present session began March 29, 1943 and will end December 23, 1943. The subsequent session will begin January 3, 1944. The Dean is D. W. E. Baird, M.D.

PENNSYLVANIA

Philadelphia

THE HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 235 North Fifteenth Street.—Organized in 1848 as The Homeopathic Medical College of Pennsylvania. In 1869 it united with The Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Coeducational beginning with 1941-1942 session. Three years of collegiate work in an approved college of arts and sciences are required for admission. It has a faculty of 113 professors and 114 lecturers, instructors, and others, a total of 227. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Fees are, respectively, $515, $512, $512 and $535. The registration for 1942-1943 was 512; graduates, 126. The present session began April 5, 1943 and will end December 23, 1943. The subsequent session will begin January 3, 1944. The Dean is William A. Pearson, M.D.

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, 1025 Walnut Street.—Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa. It was chartered with its present title in 1838. Classes have been graduated annually beginning 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 92 professors, associate and assistant professors and 228 associates, lecturers, demonstrators and instructors, a total of 320. The bachelor's degree requirement for admission has been suspended for the duration. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees for the current session are, respectively, $505, $490, $430, $430, (Transfers, $480). The registration for 1942-1943 was 556; graduates, 142. Registration for the present session is 571. The current session for freshmen and sophomores extends from April 12, 1943 to December 14, 1943; for juniors and seniors from May 3, 1943 to January 7, 1944. The subsequent session for freshmen, sophomores and juniors begins January 10, 1944 and for seniors, January 17, 1944. The Dean is William Harvey Perkins, M.D.

TEMPLE UNIVERSITY SCHOOL OF MEDICINE, 3400 North Broad Street.—Organized in 1901. The first class graduated in 1904. Coeducational since organization. The faculty numbers 33 professors and 223 associates, assistants and others, a total of 256. An accelerated program has been

adopted involving the admittance and graduation of a class approximately every nine months. Two years of collegiate work are required for admission. The fees average $492 per academic year. The registration for 1942-1943 was 463; graduates, 120. The present session for upper classes began April 1, 1943 and will end December 16, 1943. The subsequent session begins January 3, 1944. The Dean is William N. Parkinson, M.D.

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty-Sixth and Pine Streets.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. The faculty consists of 130 professors, associate and assistant professors, and 448 lecturers, associates, instructors and others, a total of 578. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The tuition fee is $500 each year, with a deposit fee of $15, a general fee including student health of $15 and a matriculation fee of $5. The registration for 1942-1943 was 511; graduates, 130. The present session began April 5, 1943, and will end December 22, 1943. The subsequent session begins January 3, 1944. The Dean is William Pepper, M.D.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Henry Avenue and Abbottsford Road, East Falls.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 87 professors and 61 assistants, lecturers and others, a total of 148. At least three years of collegiate work are required for admission and candidates with a degree are given preference. The curriculum covers four years of eight and one-half months each. Total fees are $500 yearly. The registration for 1942-1943 was 119; graduates, 22. The present session for third and fourth year students began July 5, 1943, and will end March 16, 1944. For first and second year students the next session will begin September 13, 1943, and end May 20, 1944. The Dean is Margaret D. Craighill, M.D., who is on leave of absence for military service. The Acting Dean is Marion Fay, Ph.D.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. The faculty is composed of 30 professors and 370 associates, assistants and others, a total of 400. Entrance requirements are two years of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees are $500 each year. The registration for 1942-1943 was 336; graduates, 72. The present session began April 5, 1943 and will end about December 18, 1943. The subsequent session will begin January 3, 1944. The Dean is W. S. McElroy, M.D.

SOUTH CAROLINA

Charleston

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917. It has a faculty of 43 professors and 73 associates, instructors and others, a total of 116. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Two years of collegiate work are required for admission. The total fees are $272 each year. Fees for nonresidents of the state, $422 each year. The registration for 1942-1943 was 189; graduates, 48. The present session began March 29, 1943 and will end December 22, 1943. The subsequent class will begin January 3, 1944. The Dean is Robert Wilson, M.D.

TENNESSEE

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 874 Union Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated in 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 139 professors and 157 assistants, instructors and others, a total of 296. Two years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees are $120 quarterly. For residents of the state the charge is reduced $50 each quarter. The registration for 1942-1943 was 510; graduates, 109. During the academic year of 1943-1944 the quarters begin July 5, September 23, January 3 and March 23, and end September 22, December 11, March 18 and June 7. The Dean is O. W. Hyman, Ph.D.

Nashville

MEHARRY MEDICAL COLLEGE, Eighteenth Avenue North and Heffernan Street. (For Negro Youth.)—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 49 professors and 30 instructors and lecturers, a total of 79. Two years' work in a college of liberal arts are required for admission. Tuition fees are, respectively, $325, $315, $305 and $315 each year. The curriculum covers four academic years of thirty-four weeks each. Registration for 1942-1943 was 242; graduates, 50. The next session begins March 1944. In September 1942, Meharry Medical College instituted the quarter system. Meharry initiated an accelerated schedule in July 1943. The Dean is Michael J. Bent, M.D.; the President is Edward L. Turner, M.D.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty-First Avenue South at Edgehill.—This school was founded in 1874. The first class graduated in 1875. Coeducational since 1925. The faculty numbers 255. For matriculation, civilian students must be graduates of collegiate institutions of recognized standing or seniors in absentia, who will receive the bachelor degree from their college after having completed successfully one year of work in the school of medicine. Army and Navy students will be accepted on completion of the Army or Navy premedical program. The course covers four academic years of nearly nine months each, but due to the accelerated program, the four year course is now completed in three calendar years. The fees average $465 per academic year. The registration for 1942-1943 was 209; graduates, 52. The present session began March 24, 1943 and will end December 22, 1943; the following session begins January 3, 1944. The Dean is Waller S. Leathers, M.D.

TEXAS

Galveston

UNIVERSITY OF TEXAS MEDICAL BRANCH, 912 Avenue B.—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 61 professors (including associate and assistant professors) and 106 instructors and assistants, a total of 167. The Medical Branch is operating on an accelerated program offering three terms of 16 weeks each per calendar year to correlate it with the needs of the Army and Navy for medical education. The fees average $92.50 per academic year, including health fees for medical care and hospitalization. The registration for 1942-1943 was 393; graduates, 87. The present freshman class was matriculated March 15, 1943. There will be a second freshman class to matriculate about November 1, 1943. The last class graduated July 31, 1943. Plans now call for the acceptance of new students about every eight months. The Dean is Chauncey D. Leake, Ph.D.

Houston

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 509 Lincoln Street, Houston, Texas.—Organized in 1900 at Dallas as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. The school was moved to Houston in 1943. Coeducational since organization. The first class graduated in 1901. Entrance requirements are 80 semester hours of collegiate work. The course covers four years of eight months each. An accelerated program has been adopted beginning July 12, 1943, involving the admittance and graduation of a class every nine months. The fees are, respectively, $423, $413, $403, $428. The registration for 1942-1943 was 318; graduates, 77. The present session began July 12, 1943 and ends March 13, 1944. The Dean is W. H. Moursund, M.D.

VERMONT

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 57 professors and 45 instructors, and assistants, a total of 102. Army and Navy premedical curricula accepted for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. For residents of Vermont the tuition fee is $400 each session. Nonresidents are charged an additional $150 each session. A $25 fee is charged for the doctor's degree. The registration for 1942-1943 was 133; graduates, 31. The present session began April 12, 1943 and will end December 21, 1943. The subsequent session begins January 3, 1944. The Dean is Clarence H. Beecher, M.D.

VIRGINIA

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. It has a faculty of 47 professors and 47 lecturers, instructors, assistants and others, a total of 94. Two years of college work are required for admission. For residents of Virginia the total fees average $388 per academic year. Nonresidents are charged an additional $50 each year. The registration for 1942-

1943 was 258; graduates, 55. The present session began March 29, 1943 and will end December 20, 1943. The subsequent session will begin December 29, 1943. The Dean is Harvey Ernest Jordan, Ph.D.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Marshall Streets—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 92 professors and 166 lecturers, instructors and others, a total of 258. Of this group 10 professors and 77 lecturers, instructors and others are on military leave. Two years of collegiate work are required for admission. An accelerated program has been adopted involving the admission and graduation of a class approximately every nine months. Fees average $382 per academic year. Nonresidents are charged an additional $125 each year. The registration for 1942-1943 was 306; graduates, 68. The present session began April 5, 1943 and will end December 22, 1943. The subsequent session will begin December 30, 1943. The Dean is J. P. Gray, M.D.

WISCONSIN

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 418 North Randall Avenue.—Organized in 1907. Gave only the first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. The requirement of three years of collegiate work for admission has been reduced to two years for the duration. Beginning July 1, 1943, a class is being admitted every nine months. An accelerated program has been adopted permitting the completion of four years of academic work in three calendar years. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees average $206 per academic year. An additional fee of $200 each year is charged nonresidents. The registration for 1942-1943 was 277; graduates, 63. The present session for freshmen began July 1, 1943 and the following session will begin April 1944. The Acting Dean is Walter J. Meek, Ph.D.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, 561 North Fifteenth Street.—Organized in December 1912 by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 192. Three years of collegiate work are normally required for admission. During the duration students are admitted in accordance with the prescribed Army and Navy programs. The accelerated program will include three semesters each calendar year, and complete the equivalent of four years of eight and a half months each in three calendar years. The fees average $450 per academic year. The registration for 1942-1943 was 345; graduates, 150. The present session began March 1, 1943 and will end October 31, 1943. The subsequent session begins November 1, 1943. The Dean is Eben J. Carey, M.D.

CANADA

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE, Edmonton.—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. New course—three years premedical, four years medicine, one year internship for medical degree—has been offered beginning with the session 1942-1943. The faculty includes 21 full time and 45 part time professors, instructors, assistants and others, a total of 68. Tuition for the second, third and fourth years is $257.50, for the fifth and sixth years $267.50. The registration for 1942-1943 was 160; graduates, 33. The present session (accelerated) began February 1, 1943 and will end September 1, 1943. All medical classes are accelerated. The following session opens September 27, 1943. The Acting Dean is John James Ower, M.D.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE, Bannatyne Avenue, Winnipeg.—Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 36 professors and 103 instructors and assistants, a total of 139. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university. An accelerated program has been adopted. The course extends over four years of eight months each and a hospital internship. The fees average $254 yearly. The registration for 1942-1943 was 228; graduates, 50. The present session began for first year, August 21; second year, March 29; third year, April 5; fourth year, April 12, and will end April 1944, December 18, 1943, January 8 and January 15, 1944. The Dean is A. T. Mathers, M.D.

Nova Scotia

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE, Morris Street, Halifax.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. It has a faculty of 39 professors and 38 demonstrators, lecturers and others, a total of 77, 9 of whom are in active service, and are on leave for the duration. Requires for matriculation two years of arts. The regular medical course covers four years and a hospital internship of one year. In order to meet the needs of the Canadian Armed Forces the classes in the last three years have been accelerated. The content of the third and fourth years remains the same but holidays have been practically eliminated. The final year internship has for the time being been reduced to eight months. The third year began their studies on May 10 and continue until the end of December. The fourth year began their studies on January 4 and continue until the middle of August. The first and second years will begin on September 8, 1943 and end on May 11, 1944. The fees average $314 yearly; $250 additional registration fee payable by students outside the British Empire. The registration for 1942-1943 was 171; graduates, 37. The Dean is H. G. Grant, M.D.

Ontario

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 65. Fees for the first year amount to $231, and for the following years $253. The course covers six years of thirty teaching weeks each. An accelerated program has been adopted, and the course may now be completed in four and one-half years. Freshmen will be admitted annually. The registration in September 1942 was 279; graduates during the session 1942-1943, 45. The next session begins for second year students August 23, 1943; for first, fifth and sixth year students on September 27, 1943; for fourth year students on January 3, 1944; and for third year students on April 10, 1944. Classes graduated July 28, 1943 and another class will be graduated April 30, 1944. The Dean is Frederick Etherington, M.D.

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University Medical Department, and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The B.Sc. (Med.) degree is conferred at the end of the third or sixth year. It has a faculty of 76 professors and 342 (including 81 on leave of absence for the duration of the war) lecturers, associates and others, a total of 418. The fees are $240 for the first year; for the second $315; $315 for the third year; $340 for the fourth and fifth years and $348 for the sixth year. The registration for 1942-1943 was 753, graduates 107. The next first year course begins September 28, 1943 and ends May 6, 1944. Students in the final year graduated July 30, 1943 and will graduate every eight months thereafter. The Dean is W. E. Gallie, M.D.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL, Ottawa Avenue, London.—Organized in 1881 as the Western University Faculty of Medicine; first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 101. The normal course of study covers five years of ten months each. The total fees to residents of Canada for the last four years respectively are $352, $352, $348 and $252; nonresidents are charged $642, $642, $638 and $438 for each of the last four years. The registration for 1942-1943 was 224; graduates, 30. The next session begins for the sixth year August 30, 1943 and ends April 15, 1944. Classes for the second, third and fourth years begin August 30, 1943 and end June 17, 1944. The Dean is F. J. H. Campbell, M.D.

Quebec

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine; first class graduated in 1855, and a class graduated each subsequent year. An accelerated program was adopted in 1942 on account of the war. The faculty numbers 91. The fees for each of the medical years are $200 for residents of Canada. Nonresidents are charged an extra fee of $200 each year. The premedical requirement is a B.A. degree or its equivalent. The registration for 1942-1943 was 364; graduates, 47. The next class will graduate in September 1943. Freshmen will enrol Sept. 1, 1943. The Dean is Charles Vézina, M. D.

MCGILL UNIVERSITY FACULTY OF MEDICINE, 3640 University Street, Montreal.—Founded in 1823 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-1839, owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College. Coeducational since 1919. Three years of collegiate work are required for admission. An acceleration program has been adopted for the upper classes. The faculty consists of 82 professors and 204 lecturers and others, a total of 286. The total fees for each of the four medical years are $391 plus $100 for non-British subjects. The registration for 1942-1943 was 409; graduates, 94. The present session began for sophomores June 7, juniors February 17 and seniors May 6, 1943. Freshmen will enroll September 7, 1943. The next class will graduate November 1943. The Dean is J. R. Fraser, M.D.

UNIVERSITY OF MONTREAL FACULTY OF MEDICINE, 2900 Mount-Royal Boulevard, Montreal.—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891, by Act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by Act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The faculty numbers 150. The B.A. or B.S. degree, or its equivalent, is the premedical requirement. An accelerated program has been adopted. An internship is required for graduation. The fees average $235 yearly. The registration for 1942-1943 was 237; graduates, 53. The present session for juniors and seniors began June 1, 1943 and will end Nov. 30, 1943. Freshmen and sophomores will enroll Sept. 1, 1943 and will complete the year April 17, 1944. The Dean is Albert LeSage, M.D.

DESCRIPTION OF SCHOOLS OF THE BASIC MEDICAL SCIENCES

ALABAMA

University (Tuscaloosa)

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE.—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. Coeducational since 1920. Minimum entrance requirements meet Army and Navy specifications. An accelerated program has been adopted and a new freshman class will be admitted approximately every nine months. The faculty includes 14 professors and 14 instructors, assistants, and others, a total of 28, of whom 7 are absent in the Armed Forces. The tuition fees are $354 each academic year plus $75 differential for nonresidents. The registration for 1942-1943 was 99. The present session began March 11, 1943, and will end November 6, 1943. The subsequent session will begin December 6, 1943. The Dean is Stuart Graves, M.D.

MISSISSIPPI

University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE.—Organized in 1903. Coeducational since organization. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. An accelerated program has been adopted and a new freshman class is admitted each nine months. Entrance requirement is three years of collegiate work or ninety semester hours of credit. The B.S. degree in medicine is conferred at the end of the second year. The faculty includes 9 professors, 2 assistant professors, 1 adjunct professor, 17 instructors, assistants and others, a total of 29. The total fees for the first year are $375, and for the second year $348. The registration for 1942-1943 was 58. The present session began February 1, 1943, and will end September 20, 1943. The subsequent session begins September 27, 1943. The Dean is B. S. Guyton, M.D.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1872. An accelerated program has been adopted involving the admittance of a class every nine months. The faculty includes 23 professors and 19 instructors, lecturers and others, a total of 42. The entrance requirements are 60 semester hours of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. Total fees for the first year are $266, for the second, $224. The registration for 1942-1943 was 75. The current session began March 22, 1943 and will end December 18, 1943. The subsequent session will begin December 27, 1943. The Dean is Dudley S. Conley, M.D.

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized by Dr. Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Courses of the third and fourth year were discontinued in 1914. The faculty consists of 22 professors and 14 instructors, a total of 36. Army and Navy premedical curricula accepted for admission. An accelerated program has been adopted admitting a freshman class approximately every nine months or eight months of actual teaching. Candidates for the A.B. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The tuition is $450 for each year. The registration for 1942-1943 was 46. The present session began February 7, 1943 and will end October 23, 1943. The subsequent session begins October 31, 1943. The Dean is John P. Bowler, M.D.

NORTH CAROLINA

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department in Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Coeducational since 1914. Three years of college work are required for admission. Certificates are awarded on the completion of two years' work in medicine. The faculty is composed of 20 professors and 13 instructors, a total of 33. The fees for each year are $300 for residents; for nonresidents an additional fee of $100. The registration for 1942-1943 was 91. The school has gone on the accelerated schedule for the duration of the war. The 1943 session began March 22 and new sessions will begin approximately every nine months. The next session will begin December 1943. The Dean is W. Reece Berryhill, M.D.

Winston-Salem

BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE, WINSTON-SALEM.—Organized in 1902 as Wake Forest as a school offering only the first two years of the curriculum. In 1941 the school was moved to Winston-Salem and expanded to a complete four year medical school under its present name. Ninety semester hours of college work are required for admission. For the duration of the present war students may be admitted who have completed only sixty semester hours. The B.S. degree is given to those who on admission have completed ninety semester hours of academic work after the completion of the first year in the medical school. Under an accelerated program classes are admitted every nine months. The next class will be admitted on January 3, 1944. The faculty numbers 119, 18 of whom are on leave of absence in active military service. Tuition for each academic session is $450. Registration for the session 1942-1943 was 114. The present session began March 22, 1943 and will end in December 1943. The Dean is C. C. Carpenter, M.D.

NORTH DAKOTA

Grand Forks

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years work in a college of liberal arts are required for admission. (For the duration of the war about two years as per Army and Navy plans.) The B.S. degree in combined arts-medical course is conferred at the end of the second year. The faculty consists of 7 professors and 8 instructors, a total of 15. The fees are $170 each year for resident students and $340 for nonresidents. The registration for 1942-1943 was 53. The present session began June 14, 1943 and ends March 26, 1944. The Dean is H. E. French, M.D.

SOUTH DAKOTA

Vermillion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICAL SCIENCES.—Organized in 1907 as the University of South Dakota School of Medicine. Present title in 1937. Coeducational since organization. Offers only the first two years of the medical course. Three years work in a college of liberal arts are required for admission. Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to the A.B. degree. The B.S. degree is conferred at the end of the second year on those students who do not hold a combination (Arts and Sciences and Medicine Course) A.B. degree. The faculty numbers 18. An accelerated program has been adopted involving the admittance of a class approximately every nine months. The tuition is $150 each year for residents and $250 for nonresidents. The registration for 1942-1943 was 49. The present session began March 8, 1943 and will end December 4, 1943. The subsequent session will begin December 6, 1943. The Dean is Joseph C. Ohlmacher, M.D.

UTAH

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE, University Street.—Organized in 1906. Coeducational since organization. Four-year course started in March 1943, when the first junior class began its work. The complete four-year course is now in the process of being organized. An accelerated program has been adopted involving the admittance of a class every nine months. Three years of collegiate work are required for admission. The medical faculty consists of 16 professors, 3 instructors, 35 lecturers and 5 fellows, assistants and technicians, a total of 59. The fees for each quarter are $1135; there is a nonresident fee of $55 each year. The registration for 1942-1943 was 79. The present session began March 20, 1943 and ends December 3, 1943. The subsequent session begins December 13, 1943. The Dean is A. Cyril Callister, M.D.; C. B. Freudenberger, M.D., being Associate Dean.

WEST VIRGINIA

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902, gives the first two years of the medical course, but agreement has been made for the transfer of 20 students each year to the Medical College of Virginia. Coeducational since organization. Entrance requirements are normally three years of collegiate work, but a minimum of two years will be accepted when necessary during the war emergency. The B.S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance of a class every nine months. Faculty numbers 24. Fees for residents of the state are, respectively, $225 and $265; nonresidents, $150 additional each year. The registration for 1942-1943 was 56. The present session began March 22 and will end December 17, 1943. The subsequent session begins December 27, 1943. The Dean is Edward J. Van Liere, M.D.

CANADA

Saskatchewan

UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon.—Organized in 1926. Coeducational. Offers the first two years of the medical course. An accelerated program has been adopted. Two years of collegiate work are required for admission. The B.A. degree is conferred at the end of the second year. The medical faculty includes 7 professors and 4 lecturers and assistants, a total of 11. The fees are $150 for each year. The registration for 1942-1943 was 44. The next session begins October 5, 1943 for the first year and ends May 12, 1944. The second year began June 1, 1943 and ends December 22, 1943. The Dean is W. S. Lindsay, M.B.

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INTERNSHIPS, RESIDENCIES AND FELLOWSHIPS

(Lists Available on Request; see footnote 1)

In January 1943 the civilian hospitals approved for intern training could accommodate 7,959 interns. When compared with 5,567 actually on duty it is apparent that these hospitals were operating with a shortage of 2,392 interns. Under normal conditions, however, many of these vacancies would have been filled by interns continuing beyond the usual twelve months period. For example, in January 1942 there were 7,219 interns employed, or approximately 2,000 more than the number of medical graduates in the preceding year. In the face of this continuing shortage it is becoming increasingly important that hospitals cooperate in maintaining an equitable distribution of interns by limiting appointments to actual minimum needs. As a general rule the ratio of house officers to patients should not exceed one intern to six hundred annual admissions.

NEW INTERNSHIPS

Many hospitals that were formerly employing resident physicians as general house officers are now facing a dearth of resident personnel and are considering the possibility of establishing an intern training program. The main concern in such a plan is the ability of the hospital to fulfil the requirements of the fifth year of medicine, for the internship is primarily an educational function and should not be viewed as a means of supplying personnel in relation to institutional service. It should also be taken into account that with the present scarcity of applicants it is unlikely that any new hospital entering the educational field will be able to attract a sufficient number of qualified medical graduates to establish and maintain a satisfactory rotating service. Prospective interns will naturally continue to seek appointments in hospitals whose educational services have long been established and are already favorably known. The 759 hospitals currently approved for intern training are supplying more internships than are required even under the present accelerated program of medical education.

LIMITATION OF DUTIES

With the present shortage of interns and residents, economy in the use of house officers should be observed not only from a numerical point of view but also in relation to individual assignments. If possible, therefore, the routine procedures which do not contribute materially to the training program should be transferred to nursing and technical personnel so that the intern's time may be devoted to essential hospital and educational needs. Record work can often be reduced in volume without sacrificing any of the essential clinical data. In this manner considerable time can be saved as well as through the use of dictaphones and stenographic assistance whenever available. When operating with a limited house staff it might become necessary for the attending physicians to take over some of the duties ordinarily assigned to interns and residents. While this would seem difficult under present conditions, it should be noted that the elimination of parallel services, multiple emergency assignments and other duplications of staff efforts has made it possible in some hospitals to obtain at least a partial solution to this problem.

1. Government wartime restrictions on the use of paper necessitates omission of the Council's revised list of approved internships, residencies and fellowships. However, copies of the lists will be printed and sent to all approved medical schools, medical libraries, approved hospitals, state licensing bodies, specialty boards and other interested agencies. The lists will also be included in the reprint edition of the Educational Number, which has a wide distribution and is available on request.

OVERLAPPING OF INTERNSHIPS

Under the present accelerated program of medical education there is considerable difficulty in coordinating the regular one year internship with a new graduating class every nine months. The main difficulty when graduation and internship periods do not coincide is the overlapping of services that will necessarily occur. Thus hospitals may experience alternate periods of shortage and overabundance of house officers with the attendant problems of housing and readjustment of schedules. Many hospitals, however, which do not have their full quota of interns can readily accept new applicants three months before the previous group has completed its year of service. Others may find a solution in the establishment of affiliated services in neighboring hospitals that are prepared to offer satisfactory training. If this method is adopted, the educational assignments should be carefully planned in relation to the total internship program of the individual graduate. It should also be noted that only when a hospital is prepared to assume supervision and responsibility for the affiliated three months training will it be in position to certify the completion of the required twelve months internship. Because of the shortage of residents, it has also been possible in some institutions to give the senior interns advanced houseships during the last three months so that their work will not conflict with the assignments of the incoming group. A few hospitals are planning to assign interns to senior staff physicians in their last three months of service. Such preceptorships should be under the supervision of the hospital intern committee and so correlated with the previous training as to furnish a well rounded internship program.

In some parts of the country it has been advocated that the internship be reduced to nine months. Hospitals, however, would still be confronted with the

Classification of Approved Residencies and Fellowships—1943

Specialty	Residencies		Asst. Residencies		Fellowships		Total		Number of Hospitals
	Offered	Filled	Offered	Filled	Offered	Filled	Offered	Filled	
Anesthesiology	77	55	39	15	22	15	138	85	49
Cardiology	6	1	1	..	1	..	8	1	7
Communicable diseases	50	32	13	5	..	..	63	37	18
Dermatology & syphilology	41	30	21	11	20	13	82	49	34
Epilepsy	1	1	..	..	..	..	1	1	1
Fractures	5	1	3	2	..	..	8	3	4
Gynecology	29	26	15	14	..	..	44	40	21
Malignant disease	47	41	3	1	..	..	50	42	17
Medicine	418	297	221	102	200	108	839	507	221
Mixed	139	68	15	5	..	..	154	83	64
Neurology	43	34	20	10	21	21	84	74	30
Neurosurgery	27	17	13	7	10	10	50	34	27
Obstetrics	84	73	54	30	..	..	148	108	60
Obstetrics-gynecology	108	142	131	94	10	10	318	253	98
Ophthalmology	116	106	47	35	20	17	183	158	44
Ophthalmology-Otolaryngology	86	59	26	24	6	3	118	85	42
Orthopedic surgery	146	112	53	29	36	28	235	169	65
Otolaryngology	99	77	55	28	16	6	170	111	70
Pathology	204	124	70	34	37	23	311	187	101
Pediatrics	187	127	109	128	13	13	309	268	120
Physical therapy	1	1	1	..	3	1	5	2	3
Plastic surgery	3	3	1	..	3	1	6	3	4
Psychiatry	277	221	64	31	16	13	457	265	129
Radiology	162	89	71	10	44	29	281	128	124
Surgery	455	305	439	222	136	173	1,030	699	305
Thoracic surgery	26	23	7	7	8	7	41	37	20
Traumatic surgery	3	3	..	..	..	..	3	3	3
Tuberculosis	234	169	84	54	9	4	327	227	92
Urology	85	85	51	39	17	16	153	140	72
Totals	3,323	2,331	1,782	1,151	711	560	5,816	4,042	*

* Number of hospitals approved for residencies and fellowships, 648.

problem of organizing internships in relation to the various dates of graduation. Furthermore, the need for giving medical students the full experience of a twelve months internship seems even greater now that the undergraduate curriculum has been compressed into a shorter time period. The Council on Medical Education and Hospitals, the Association of American Medical Colleges, the Army and the Navy have all recommended that the internship should not be reduced below the level of twelve months. Six medical schools require the completion of an internship before the degree of doctor of medicine is awarded. Twenty-two states, the District of Columbia, Alaska, Hawaii and Puerto Rico have a similar requirement in relation to licensure, and in some ten states the medical practice acts specify that applicants must have completed an intern service of at least one year. Any reduction, therefore, in the customary one year assignment would necessitate legislative change in these particular states in order that the interns might be eligible for licensure.

RESIDENCIES AND FELLOWSHIPS

In January 1943 the hospitals approved for residency training were offering 3,323 residencies, 1,762 assistant residencies and 711 fellowships, a total of 5,796. At that time 4,082 positions were filled, indicating a shortage of 1,714 in comparison with the number of applicants desired. Reference should be made to the accompanying table showing the present classification of approved residency training programs.

Because of military requirements it has been indicated that civilian hospitals will need to reduce their resident staff to less than 50 per cent of the number employed before the war. Residencies and fellowships, therefore, should be limited to such assignments as are essential for the provision of adequate hospital care and for the clinical training of medical students. When vacancies exist it has been recommended that essential residencies be filled by women physicians, men physicians disqualified for military service, other interns or residents deferred by Selective Service and qualified graduates of foreign medical schools.

While curtailment of civilian residencies must necessarily take place, it is encouraging to note that opportunities are being provided for continued specialty training in army and naval hospitals for which credit may be assigned in accordance with the regulations of the individual certifying boards. Many of the hospitals of the Army Air Forces, for example, have recently established well organized residency training programs under the direction of the Air Surgeon's Office. These educational services, which may extend over a period of one year, have been found to fulfil the standards of the Council on Medical Education and Hospitals and have been approved as offering acceptable residencies in medicine and in surgery.

POSTWAR NEEDS

It is anticipated that immediately after the war large numbers of physicians will be seeking opportunities for graduate or postgraduate training in medicine. Many will wish to resume courses interrupted by the call to military service, while others will enter new training programs to prepare themselves for specialty practice.

To help meet this demand the Council has initiated a preliminary survey to determine all available and potential facilities for advanced training in connection with intern and residency hospitals, undergraduate and graduate medical schools, clinics, departments of health, state medical associations and other agencies interested in graduate or postgraduate education.

A total of 1,267 institutions and agencies included in this survey were asked to indicate what educational opportunities might be available if additional needs should develop. Information was requested primarily in relation to residency and fellowship training, basic science instruction, public health education and postgraduate courses in the various divisions of medicine and surgery. It was recognized that there would be opportunities for the development of additional high grade training programs in institutions that had not yet reached their full educational capacity. However, the Council did not wish to encourage the organization of new residencies, fellowships and postgraduate courses unless satisfactory facilities could be provided.

Replies have now been received from 682. While these have not yet been tabulated and analyzed, it is apparent from individual reports that genuine interest has been created and that institutions are anxious to cooperate to the full limit of their facilities. The Council is continuing its study of the opportunities for postwar graduate medical education.

CONTINUATION STUDY FOR PRACTICING PHYSICIANS

Realizing that many scientific meetings and other programs of graduate medical education have been canceled because of war conditions, the Council on Medical Education and Hospitals has endeavored, nevertheless, to provide information regarding opportunities still available for the continuing education of practicing physicians as well as medical officers in the armed forces. It has published quarterly in THE JOURNAL during the past year opportunities currently available. The last such listing appeared in THE JOURNAL for July 3, 1943. The next will appear in a September issue. These courses have proved valuable for physicians returning to practice in the present emergency as well as for those formerly limiting their practice to a specialty but who are now assisting in the general care of patients. In presenting this material, mention is made of recent and noteworthy developments in graduate education. Graduate and postgraduate courses have been subdivided into three groups: courses in which instruction was offered to physicians in or near their home communities, courses providing ample facilities for clinical instruction and, lastly, a group including clinical conferences, graduate assemblies, study courses and so forth.

RECENT NOTEWORTHY DEVELOPMENTS

Under the auspices of the committee representing the American Medical Association, the American College of Physicians and the American College of Surgeons, a series of War-Time Graduate Medical Meetings is being developed. These programs have been organized for physicians in the Army, Navy and Public Health Service and for physicians in civilian life who are resident within reasonable traveling distance of the camps and hospitals in which these postgraduate oppor-

tunities will be offered. For organizational purposes the country has been divided into twenty-four sections, and key committees of three men have been appointed in each section to carry on the details of the program. In order to insure the best results a group of qualified authorities has been designated to serve as national consultants in the various special fields. Likewise the Surgeon Generals of the Army, Navy and Public Health Service have appointed a committee of three, one man from each organization, to collaborate in the work of administration. This program is essentially an elaboration of a teaching plan that has been used successfully in the Boston, Chicago and Philadelphia areas, originated by the American College of Physicians. Arrangements have been made with fifty-five medical schools to participate in these teaching programs. The section committees, in conferences with commanding officers of service hospitals in their areas, are selecting subjects, dates and teaching personnel for graduate courses. A directive was issued from the office of the Surgeon General of the Army calling the attention of commanding officers to this educational project and urging their cooperation and active participation. Tentative programs have appeared in THE JOURNAL of June 5, June 26 and July 3.

A preliminary survey has been initiated by the Council on Medical Education and Hospitals of the American Medical Association to determine all available and potential facilities for advanced postwar training in connection with hospitals, undergraduate and graduate medical schools, clinics, departments of health and other agencies interested in graduate or postgraduate education. It is anticipated that large numbers of physicians will be seeking such opportunities. Many will wish to resume courses interrupted by entrance into military service, while others will enter new training programs to prepare themselves for specialty practice. It is recognized that there will be opportunities for the development of additional high grade training programs in institutions which have not yet reached their full educational capacity. An analysis of questionnaires sent out for this purpose is now being made by the Council.

Courses for medical officers of the Army, Navy and Public Health Service have been given repeatedly throughout the year. In addition the Public Health Service has arranged courses of six months to three years duration throughout the United States in the diagnosis and treatment of cancer for civilian physicians. Lectures sponsored by the Public Health Service and other agencies in occupational dermatoses have been held at the National Institute of Health. These facilities were available to physicians, specialists and naval medical officers. In Chicago the Dermatoses Investigation Section of the Public Health Service offered without charge to physicians a two weeks course, clinical and didactic in nature, in occupational dermatoses, using the facilities of industrial plants.

Eight universities were given subsidies by the United States Public Health Service to provide opportunities for instruction in public health including venereal diseases. These courses vary in length from three months to one year and were given throughout the year. Of these eight universities which were given subsidies, only five were active in providing these courses. The total attendance was fifteen. Weekly since June 15 the Public Health Service and the Philadelphia Lying-In Hospital have given clinical courses in continuous caudal anesthesia, with a weekly attendance of seven.

The four week course annually offered in the fall and spring at Hot Springs National Park by the Public Health Service in the clinical management and public health control of the venereal diseases was again offered during the past year. This course was made available to sixty-eight physicians and no fee was charged.

Financed by the Western Association of Industrial Physicians and Surgeons, the California State Board of Health and the California Medical Association, didactic courses in wartime industrial health were offered in seven centers. No fee was exacted, and the courses covered one day in the autumn of the year.

At Yale University School of Medicine one session a week for twelve weeks was devoted to industrial health and medicine in wartime, with a total attendance of sixty-one physicians.

Again during the past year the Georgia Warm Springs Foundation offered instruction in poliomyelitis, the course being of one week's duration.

The Institute for Psychoanalysis in Chicago, together with the University of Illinois and the Michael Reese Hospital, has developed three courses in psychiatry and neurology, emphasizing war neuroses, varying in length from two weeks to four months. The physician attendance at these courses throughout the year totaled 145.

The twenty-seventh annual assembly of the Inter-State Postgraduate Medical Association of North America was held in Chicago. The assembly occupied a five day period devoted to both clinical and didactic instruction. The recorded attendance at the assembly was 2,500.

Arranged short courses as well as courses up to one year's duration, both clinical and didactic in nature, were available at the Menninger Foundation, Topeka, Kans., in psychiatry and neurology. The Topeka Psychoanalytic Society and the Southard School in that city cooperated in this endeavor in some instances.

The Maine Medical Association, together with the Bingham Association and the Commonwealth Fund, arranged courses varying in length up to two months.

A three week course in industrial medicine was given to physicians in Michigan without fee by the Michigan Department of Health in collaboration with the Michigan State Medical Society, the Council on Industrial Health of the American Medical Association, the Social Security Agency and the Procurement and Assignment Service.

At the Center for Continuation Study at the University of Minnesota, in cooperation with the National Foundation for Infantile Paralysis, two courses were offered in the Kenny method of treatment of poliomyelitis. One course of five days' duration was offered in the autumn of 1942 and the summer of 1943. A course six days in length was offered on seven occasions also at the Center for Continuation Study. A registration of 214 physicians was reported for these courses. The fee charged was $25. These courses are in addition to the complete program of graduate studies offered in various subjects at the Center.

Courses in obstetrics and pediatrics consisting of one day in each of eleven centers, given in the autumn of the year, were offered by the University of Nebraska College of Medicine and the Nebraska State Department of Health.

The West Virginia Medical Association and Department of Health conducted one day industrial health institutes in each of four centers of the state.

Industrial apprenticeships of one day's duration were sponsored by the Long Island College of Medicine. The facilities of industrial plants in various states were used under the direction of a director of preventive medicine and community health.

The excellent opportunities heretofore offered by organized graduate schools were again presented in various subjects at such institutions as Tulane, Hopkins, Harvard, Tufts, University of Michigan, the Center for Continuation Study of the University of Minnesota, Buffalo, Columbia, New York Eye and Ear Infirmary, New York College of Medicine, New York University, the New York Polyclinic, the University of Pennsylvania and many others.

These examples emphasize the fact that even though the staff physicians of all institutions are sorely taxed, they have been able to develop or continue opportunities for graduate education, many of which have not been mentioned. The Council welcomes information regarding graduate education for publication in its quarterly compilation of courses.

ANALYSIS OF COURSES OFFERED, 1942-1943

At least sixteen states provided opportunities for physicians to continue professional study in or near their home communities. Courses on industrial problems in medical practice were most commonly in demand, although opportunities were presented in obstetrics and pediatrics, internal medicine and tuberculosis as well as courses of interest to the general practitioner. In addition, courses of one day's duration in the treatment of gonorrhea were given by the West Virginia department of Health and the United States Public Health Service in sixteen centers in West Virginia. The War Sessions of the American College of Surgeons, consisting of a full day's program, were available in the winter and spring months in twenty cities throughout the United States. All together, these programs were given in more than eighty centers.

Agencies which were active participants in providing these opportunities either independently or jointly included committees on graduate medical education of state and county medical societies, state departments of health, medical schools and graduate schools of medicine. Other agencies were industrial and tuberculosis associations, industrial concerns, the Commonwealth Fund, the United States Public Health Service, the United States Army, the United States Navy, the Social Security Agency, the Procurement and Assignment Service and the Council on Industrial Health of the American Medical Association.

The courses varied in length from two evening sessions to a full month of work. Sessions of one day were most common and consisted of both didactic and clinical instruction in most instances. The instructors for these extramural courses were chosen from physicians practicing in the state in which the courses were offered as well as from out of state men. The faculties of four medical schools made a large contribution to this type of instruction. The facilities used consisted of hospitals, clinics, medical schools, industrial plants and local buildings. No fee was charged in the majority of instances. The War Sessions of the American College of Surgeons attracted 14,000 physicians. The attendance reported for other opportunities was well over 4,500.

Home study courses were made available by three agencies: two courses in ophthalmology and otolaryngology of nine months' duration, a year's course in public health and four courses on various subjects. These home study courses were offered by the American Academy of Ophthalmology and Otolaryngology, the Maine Medical Association and the Albany Medical College in collaboration with the New York State Department of Health. The facilities reported were the public mails and physicians' homes, while in the third instance physicians' homes, laboratories, hospitals and the medical school were used. The instruction included selected readings, quizzes, didactic work and clinical field trips. An enrollment of 265 was reported for the courses given by the American Academy of Ophthalmology and Otolaryngology. Fifty-nine physicians availed themselves of the opportunities afforded by the Maine Medical Association and fifty students were enrolled in the home study course of the Albany Medical College.

In centers where ample clinical facilities are available, 440 graduate courses of less than one year's duration were offered in twenty-three states and the District of Columbia. Eighty-three agencies or combinations of agencies participated in the planning of the programs. Of the medical schools of the country, thirty-five have given courses for practicing physicians during the year, including nine postgraduate schools or graduate departments of medical schools. Five state medical societies and eight state or local departments of health collaborated on courses or independently planned courses for physicians of the state. In nine instances hospitals were the agencies offering short periods of study. Other sponsors included three county medical societies, five special societies, the Office of Civilian Defense, the Public Health Service, the Children's Bureau of the Department of Labor, the Commonwealth Fund and more than ten other miscellaneous agencies. While the majority of courses were in various subjects as the demand seemed apparent, specific courses in ophthalmology and otolaryngology were offered in fifty-six instances, general medicine in thirty-five, obstetrics and gynecology and dermatology and syphilology both in thirty instances, military medicine in twenty-six, both surgery and gastroenterology in twenty-three, public health in twenty-two and psychiatry and neurology in twenty instances. More than ten but less than twenty courses were offered in anesthesiology, cardiology, electrocardiology, orthopedics, pathology, pediatrics, roentgenology and tuberculosis. Other courses were offered in allergy, anatomy, bacteriology, cancer, chemical warfare, diagnosis, dietetics, endocrinology, endoscopy, general practice, hematology, industrial medicine, legal medicine, physical therapy, physiology, poliomyelitis, proctology, tropical medicine, urology, venereal diseases and two which were not stated. Fifty-six definite centers in these twenty-three states were used in presenting these 440 courses, excluding the facilities made available by the Navy, the Public Health Service and the National Institute of Health. Notably, courses were offered in eleven centers in one state and in eight in another state. In presenting graduate courses, thirty-nine hospitals, thirty-eight medical schools and twenty-four clinics cooperated by placing their facilities at the disposal of instructors and students. The description of these intensive courses gave evidence that clinical instruction was emphasized. In only three instances was the work wholly didactic. The faculties of the medical schools served as instructors in most courses. Additional instructors were specialists in their fields

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chosen mainly from physicians residing within the state in which the course was offered, but including as well physicians from outside the state. The duration of study in centers with clinical facilities varied from five days to one year. The majority, however, were completed within three weeks. The number registered for any one course ranged from 1 to 2,500. In seven instances the attendance was well over 200. The attendance reported, although incomplete, totaled 8,786.

Clinical conferences, graduate assemblies and study courses of less than five days were held in nineteen states. Fifty-two such opportunities were afforded. This type of study was sponsored by eleven medical schools, six state medical societies, ten county medical societies, twenty-three special societies, seven state and local governmental agencies, two hospitals, the United States Public Health Service, the Office of Civilian Defense and nine miscellaneous agencies. A specially appointed director of the clinics or chairman of the committee was responsible for most of the courses. The nature of these study courses was mainly subjects allied to war medicine, including the medical aspects of chemical warfare, aviation medicine and tropical medicine. Opportunities were also afforded in public health, cardiovascular diseases, glaucoma, industrial health, pediatrics, health education, anesthesia, obstetrics and venereal diseases. Other assemblies surveyed pertinent topics in medicine and surgery. The assemblies were usually held in centers large enough to accommodate the registrants and with facilities for clinical and practical work and for scientific exhibits. In one state instruction was offered to medical officers of the Army and Navy in four military centers, while a three day course was offered in another state. In addition the American College of Physicians held wartime regional meetings in eight states and the District of Columbia and also conducted postgraduate nights in two states, both of which were available to members of the College and medical officers of the armed forces.

Here again the instruction was both didactic and clinical in the majority of instances. The instructors consisted of physicians residing in the state wherein the assembly was held, physicians from other states and members of the professorial faculties of medical schools. Registration fees ranged from $2 to $25, but for the most part no fee was charged. The largest single attendance reported was 2,453. The total recorded attendance was 15,301.

APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES

In 1933 the Council on Medical Education and Hospitals of the American Medical Association was authorized by the House of Delegates of the American Medical Association to formulate standards and approve examining boards in the medical specialties. The resolution urged that the machinery of the American Medical Association, including the publication of the American Medical Directory, be used in furthering the work of boards accredited under this plan.

Standards governing the approval of specialty boards were compiled by the Council and approved by the House of Delegates in 1934 and have since been revised. The Essentials of Approved Examining Boards in Specialties include, in addition to regulations relating to the organization and operation of specialty boards, the minimum qualifications deemed necessary for certification as a specialist; namely, graduation from a medical school approved by the Council on Medical Education and Hospitals, an internship in a hospital approved by the Council, and a period of specialized training in a selected field.

Fifteen boards have now been organized. These boards are fully approved by the Council and represent the specialties of anesthesiology, dermatology and syphilology, internal medicine, neurologic surgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, pediatrics, plastic surgery, psychiatry and neurology, radiology, surgery and urology. The American Board of Internal Medicine by special examination certifies specialists in allergy, cardiovascular disease, gastroenterology and tuberculosis. Similarly the American Board of Surgery certifies specialists in proctology.

A key number has been assigned to each approved specialty board, such as A.B.1, and the biographic records of physicians published in the American Medical Directory include by this means reference to those certified by these boards.

Early in 1939 there was published by the Advisory Board for Medical Specialties the first edition of the Directory of Medical Specialists containing the names and biographic data of all men certified by the several specialty boards as well as information regarding the organization and functions of these boards. The second edition appeared early in 1942 and contains the names of about 18,000 certified specialists, including their biographic records and hospital and teaching appointments. Since that time, nearly 4,000 additional physicians have been certified. The accompanying table shows the distribution of these specialists among the boards.

Total Numbers of Certificates Awarded by the Specialty Boards to March 1, 1943

Name of Board	Certificates Awarded
American Board of Anesthesiology	188
American Board of Dermatology and Syphilology	644
American Board of Internal Medicine	2,986
American Board of Neurological Surgery	139
American Board of Obstetrics and Gynecology	1,650
American Board of Ophthalmology	2,198
American Board of Orthopaedic Surgery	919
American Board of Otolaryngology	3,570
American Board of Pathology	954
American Board of Pediatrics	1,879
American Board of Plastic Surgery	157
American Board of Psychiatry and Neurology	1,530
American Board of Radiology	1,023
American Board of Surgery	2,144
American Board of Urology	942
Total	21,733

Each of these boards has published a booklet containing a brief statement regarding its organization, personnel, purposes and qualifications for eligibility for certification. In addition, some of the boards publish lists of specialists they have certified. Booklets and lists and other data on examinations may be obtained from the secretaries of the various boards, whose addresses are given herewith.

Under the present policies of the Procurement and Assignment Service (see p. 1093) an even greater reduction in numbers of men permitted to take residencies is to be expected. It is stipulated that residencies may not be taken for training purposes, in the case of young men qualified for military service. Any such residents must be essential as teachers or house physicians. This will greatly curtail the numbers of men preparing for specialty certification. Consideration to this problem is being given by the specialty boards, which are granting some credit toward certification for work carried by a medical officer in the armed forces. A summary of the present policies is given for each of the boards listed. In announcing these policies, the boards state that requirements will not be lowered because of war conditions.

It is highly important that prospective applicants who are in military services should obtain a copy of the "Record of Professional Assignments for Prospective Applicants for Certification by Specialty Boards" from the secretary of any board. This booklet describes procedures pertaining to military credit and will enable prospective applicants and candidates to keep an accurate account of work done in the military service and will constitute part of the credentials to be submitted to the board on application for certification.

AMERICAN BOARD OF ANESTHESIOLOGY

President: JOHN S. LUNDY, M.D., Rochester, Minn.

Secretary: PAUL M. WOOD, M.D., 745 Fifth Avenue, New York.

"To officers who are practicing anesthesia in the armed services, the American Board of Anesthesiology allows the actual time up to one year credit for training. If they are not practicing anesthesia in service, they are allowed no credit for training but may be allowed up to a maximum of one year credit for practice in anesthesiology toward the five year time requirement. If practicing anesthesia in service the candidate is allowed actual time credit towards the five year practice in anesthesia time requirement."

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

President: HOWARD FOX, M.D., New York, N. Y.

Secretary: C. G. LANE, M.D., 416 Marlboro Street, Boston.

"The amount of credit for military service so far as training in this field is concerned will be decided in each case upon the evidence submitted by the candidate. Three years of full time training are required, and up to the present time no center in either Army or Navy has been developed where satisfactory training in this field may be obtained.

"So far as experience in dermatology and syphilology is concerned, the board will accept not more than one year of Army military or naval medical service as part of the required two years' experience, after the three years of training. For an officer who has completed or nearly completed his training in civil life, it is expected that the medical officer will file his 'Record of Professional Assignments' with his application as evidence of his service in the specialty."

AMERICAN BOARD OF INTERNAL MEDICINE

Chairman: ERNEST E. IRONS, M.D., Chicago, Ill.

Assistant Secretary: W. A. WERRELL, M.D., 1301 University Avenue, Madison, Wis.

"One year of service in the armed forces may be considered as one year of formal training or as one year in the practice of medicine. Further evaluation of service in the armed forces will be made after the emergency is over."

AMERICAN BOARD OF NEUROLOGICAL SURGERY

Chairman: HOWARD C. NAFFZIGER, M.D., San Francisco, Calif.

Secretary-Treasurer: PAUL C. BUCY, M.D., 912 South Wood Street, Chicago.

"The amount of credit to be allowed for training received while with the armed forces will be determined in each individual case by the board on the basis of the extent and nature of the training received. The only blanket concession which the American Board of Neurological Surgery has made in the cases of men in the armed service, is as follows: The Charter and By-Laws of the American Board of Neurological Surgery, Article 4, Section 1, Group B (c), page 16, states 'an additional period of not less than two years in the practice of neurological surgery' shall be required following the three year period of training in neurological surgery before the individual will be admitted to examination by the board. The board has waived this two year practice requirement and now permits men to take the examination immediately after completing the three year period of training in neurological surgery. However, men who have taken the examination under such circumstances and passed it, will have their certificates withheld by the board until they have given the board satisfactory evidence of having completed two years of practice in neurological surgery. Such practice may be in an institution, private, or in the armed services, providing that it meets with the approval of the board and is practice in neurological surgery, and not general surgery or some other specialty. This action was taken in order to permit the board to place its stamp of approval upon the training these young men have received and upon what they had learned in order that the surgeon generals of the various armed services may make the most possible use of their abilities."

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

President: WALTER T. DANNREUTHER, M.D., New York, N. Y.

Secretary: PAUL TITUS, M.D., 1015 Highland Building, Pittsburgh 6, Pa.

"An applicant in military service in the present national emergency and assigned to work in general surgery under conditions acceptable to the credentials committee may receive credit up to a maximum of six months applicable toward his three required years of special training. An applicant in service under military orders in an Army or a Navy hospital under supervision in an obstetrical and/or gynecological service will be given the same credit as if he were working under a preceptor, since most of these departments are supervised by men who are diplomates of this board or who are recognized obstetrician-gynecologists. Additional time in military service with any type of general medical assignment may be applied toward the board's years in practice requirement."

AMERICAN BOARD OF OPHTHALMOLOGY

Chairman: CONRAD BERENS, M.D., New York, N. Y.

Secretary: JOHN GREEN, M.D., 6830 Waterman Boulevard, St. Louis.

"The amount of credit for military service is determined in each individual case, depending entirely upon the amount and type of ophthalmology done while in service. In evaluating credentials much depends on the size of the hospital and whether the work is supervised by responsible ophthalmologists."

AMERICAN BOARD OF ORTHOPEDIC SURGERY

President: PHILIP D. WILSON, M.D., New York, N. Y.

Secretary: G. A. CALDWELL, M.D., 3503 Prytania Street, New Orleans.

"During the present national emergency, credits up to a maximum of two years may be allowed for experience gained in surgery and orthopedics while serving with the armed forces. Credits will be given only upon presentation of evidence that such

service has, in the opinion of the Committee on Eligibility, been equivalent to similar periods of approved hospital training. Record of all such military service should be kept in the Record of Professional Assignments prescribed by the Advisory Board for Medical Specialties and submitted with his application.

"(*a*) A year of orthopedic experience with the armed forces may be accepted to replace one of the three required years of orthopaedic resident training.

"(*b*) A second year of orthopedic service with the armed forces may be credited as a year toward the practice requirement."

AMERICAN BOARD OF OTOLARYNGOLOGY

President: HARRIS P. MOSHER, M.D., Marblehead, Mass.

Secretary: D. M. LIERLE, M.D., University Hospital, Iowa City.

"Credit for training received while in the armed forces will be governed by the merits of the individual case and will be determined by the credentials committee. Such credit is given for the time actually spent in restricted practice of otolaryngology."

AMERICAN BOARD OF PATHOLOGY

President: A. H. SANFORD, M.D., Rochester, Minn.

Secretary: F. W. HARTMAN, M.D., Henry Ford Hospital, Detroit.

"Credit is allowed for training and experience in pathology as it may be acquired by the applicant during his military service. This credit for training or experience or both is given on an individual basis and will depend upon the opportunity the applicant has had as indicated in his medical service record in the specialty of pathology."

AMERICAN BOARD OF PEDIATRICS

President: EDWARD B. SHAW, M.D., San Francisco, Calif.

Secretary: C. A. ALDRICH, M.D., 707 Fullerton Avenue, Chicago.

"Applicants are allowed credit for one year of military service toward the required two years of specialized practice. Military service cannot be substituted for preliminary training.

"Written examinations may be taken in camp under a Monitor, appointed by the commanding officer, but the applicants must appear before the board for oral examination."

AMERICAN BOARD OF PLASTIC SURGERY

Chairman: JOHN STAIGE DAVIS, M.D., Baltimore, Md.

Acting Secretary: V. P. BLAIR, M.D., 508 North Grand Boulevard, St. Louis.

"A man assigned to do plastic surgery in the armed forces, under suitable conditions, would be given credit toward requirements for the time thus spent, the final amount of credit in each individual case to be left to the discretion of the board and determined by the board after the information is submitted."

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY

President: C. MACFIE CAMPBELL, M.D., Boston, Mass.

Secretary: WALTER FREEMAN, M.D., 1028 Connecticut Avenue N.W., Washington, D. C.

"A maximum of two years of appropriate military service is allowed in lieu of experience, two years being the minimum time required as experience. A maximum of one year of military service is allowed in lieu of training, three years of training being required."

AMERICAN BOARD OF RADIOLOGY

President: G. W. HOLMES, M.D., Boston, Mass.

Secretary: BYRL R. KIRKLIN, M.D., 102-110 Second Avenue S.W., Rochester, Minn.

"Full credit is allowed for all work done in an approved x-ray department of the Army, Navy or Marine Corps."

AMERICAN BOARD OF SURGERY

Chairman: ARTHUR W. ELTING, M.D., Albany, N. Y.

Secretary: J. STEWART RODMAN, M.D., 225 South Fifteenth Street, Philadelphia.

"Officers in either branch of the service are given one year's credit on the necessary five years' training required. Further credit will depend in individual instances upon the assignments and must be surgical in nature in order to be acceptable."

AMERICAN BOARD OF UROLOGY

President: HERMAN L. KRETSCHMER, M.D., Chicago, Ill.

Secretary: G. J. THOMAS, M.D., 1409 Willow Street, Minneapolis.

"Applicants who join the armed forces before they have had the required two years of private practice are accepted as candidates for the examinations without immediate fulfilment of this requirement. When other requirements are satisfactorily fulfilled and the members of the credentials committee are convinced that the candidate has had sufficient training they may recommend that he submit to the written, pathological, and oral-clinical examinations, after he has submitted twenty-five acceptable case histories that he has personally examined, operated upon, and followed while a senior resident. A candidate handled in this special manner will not become a certificatee until such time as he is able to complete the balance of the requirements; that is, two years of private practice following the completion of his training in the specialty and the preparation of an additional twenty-five acceptable case histories taken from this private practice.

"The members of this board have not established a precedent nor rigid specifications concerning the amount of credit allowed to candidates in the armed forces in lieu of training or private practice.

"Candidates who have completed as many of the requirements for certification as possible and who have taken the examinations will be furnished statements, carrying the official seal of the board, outlining their status as candidates for certification."

ADVISORY BOARD FOR MEDICAL SPECIALTIES

President: WILLARD C. RAPPLEYE, M.D., New York, N. Y.

Secretary: C. G. LANE, M.D., 416 Marlboro Street, Boston.

Organized 1933-1934 to coordinate graduate education and certification of medical specialists in the United States and Canada, this board reports directly to its member groups, and functions in close cooperation with the Council on Medical Education and Hospitals of the American Medical Association and with the Advisory Council on Medical Education.

COMING SPECIALTY BOARD EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various centers, Sept. 27. *Oral.* Philadelphia, Nov. 5-6. Final date for filing application is August 16.

AMERICAN BOARD OF INTERNAL MEDICINE. *Oral.* San Francisco, Sept. 16-18. Final date for filing application is Aug. 15. *Written.* Oct. 18. Final date for filing application is Sept. 1.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Locally, Feb. 12. Final date for filing application is Nov. 15.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. Parts I and II.* Chicago, Oct. 8-9.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Written and Oral. Part II.* Chicago, Jan. 21-22.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 6-9.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Written.* Locally, Oct. 30. *Oral.* Locally, Dec. 20-21. Final date for filing application is Sept. 30.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February. *Written.* Various centers, December. Final date for filing application is Nov. 1.

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SATURDAY, AUGUST 14, 1943

MEDICAL EDUCATION IN WARTIME

The medical students of the United States, almost all of whom have Army or Navy affiliations, are soldiers and seamen in medical school. They swell the numbers of uniformed men assigned to colleges and universities to pursue a wide variety of studies in preparation for special military duties. In one important respect, medical students will differ from most of their campus mates in uniform. Essentially they will be following the same curriculum and will receive the same degree for the same work as in peacetime. The Army and Navy have recognized that the wartime task of medical schools is the training of physicians and that this task, even as it pertains to the production of medical officers, can best be accomplished by a continuation of the well established medical program. The major change is acceleration; this was inaugurated even before Pearl Harbor and eliminates from the medical curriculum little except the long summer vacation.

In the collaborative educational-military responsibility of producing medical officers, by common agreement the military is wisely subordinated to the educational. Purely military instruction and drill are kept at a minimum. In all Navy units and in almost all medical schools so far under Army contract students live and eat where they please. Study is not abruptly terminated by taps. Common mess does not dictate the premature conclusion of an experiment or the physical examination of a patient.

Numerous courses inaugurated or especially stressed since the war began represent emphasis on topics which will justify their permanent inclusion in the medical curriculum. The shrinking of world distances through modern methods of transportation will bring tropical diseases to our doors. Industrial medicine and public health will increase in peacetime. Chemotherapy and the control of shock are not limited to war.

There are continuing tendencies away from clinical didactic teaching and also from the subdivision of medicine into isolated compartments. The line between preclinical and clinical is being less sharply drawn. Interdepartmental collaboration in the presentation of related material is replacing a philosophy of medical education which states that the human body may be divided into its anatomy, its biochemistry, its pathology and its physical diagnosis. It is encouraging to note that the stress of the accelerated program has not prevented depleted faculties from a critical scrutiny of past performance and planning for means to improve the presentation of that most complex of subjects, man, in health and in disease.

Problems of postwar adjustments in medicine deserve inclusion in the undergraduate curriculum of more schools. How, if at all, is the practice of medicine likely to be different from that of the past? How may we arrive at a sound evaluation of the innumerable plans and proposed laws for improved medical care projected by lay and medical groups? These and related questions are being asked by medical students everywhere. A knowledge of the facts and analysis of the factors, forces and mechanisms at work, and the application of the searching scientific spirit which is the foundation of medical education, may lead more promptly to workable and acceptable methods.

PREMEDICAL EDUCATION

The accelerated programs developed by the armed forces for the training of premedical students differ in two essentials from the accelerated programs of the medical schools. First, acceleration in medical schools does not involve any basic change except the elimination of the long summer vacations. A significant increase in weekly work by the student is not required. The premedical programs, however, shorten the program mainly by a weekly increase in the quantity of work carried by the student. The Army Specialized Training Program provides for approximately 60 per cent more work per week by the student than in peacetime programs, and the Navy V-12 program also increases the weekly work considerably. Whether or not students will be able to carry this heavy load remains to be seen. These students will, however, be free from financial worries and the necessity for outside employment. They will receive medical care, and more attention will be paid to the students' physical condition.

The results of this experiment in concentrated premedical education will be watched with interest by all who are concerned with preprofessional education in every field, since it may offer a solution of the problem of reducing the long years of training required by the learned and scientific professions.

Second, all premedical students are subjected to a standardized curriculum. This is probably necessitated by the large number of participating premedical institutions, in some of which an attempt at standardization might elevate standards. By contrast, the medical curriculum prescribed by the armed forces is "do the best

you know how, as you have been doing." Such liberty can probably be granted only to educational institutions whose quality and programs of instruction have been well established.

The criticism has been made that the premedical programs are too heavily weighted with "tool" courses of purely utilitarian value and that they are deficient in human values. The justification for this criticism may be questioned. Properly presented, the natural sciences are rich in human values. Honesty and integrity in science are as rigorous as the tenets of any ethical system. A carefully controlled scientific experiment, testing deductions from a hypothesis, is as illustrative of correct thinking as are syllogisms and inductions of formal logic. The history of science and scientists incorporates fully as much of cultural values as does political, economic or military history. It would be preposterous to maintain that the natural sciences alone can provide a liberal education; it is even more obtuse to argue that these sciences lack human values.

THE SUPPLY OF PHYSICIANS

More than 4,000 seniors who entered the accelerated medical education program over a year ago are now well into their intern year and will complete that training before March 31, 1944. They will thus become available for military and civilian practice three months earlier than in normal times. Even half of these, should only that small proportion be commissioned, can care medically for over 300,000 troops. If this number of men is thereby enabled to enter active service three months early, before April of next year, the accelerated program will have justified itself in supplying the men required. All medical schools are accelerating throughout the four year program except one which limits the program to the junior and senior years. All are admitting classes every nine months except one which admits a class every year and one which admits a class each quarter.

A study of the number of graduates in the past forty years reveals trends of interest and importance. During approximately the first half of this period the number of graduates declined from over 5,000 annually to about half that number. This reduction paralleled the closing of many medical schools, one half of which disappeared during the period of enforcement of high standards in medical education. During the last two decades the number of graduates gradually rose; even before the war it again exceeded 5,000. This occurred in spite of an essentially unchanged number of medical schools. In 1942 there were about as many graduates from seventy-seven high grade schools as there were in 1905 from a hundred and sixty schools, most of which were decidedly inferior. This upward trend is probably warranted in the cases of many schools which have increased their faculties and facilities. In other instances increased enrolments and graduates are probably not justified by proportional increases in staff and facilities.

Now the annual number of graduates far exceeds that of any period in the history of this country, approximating twice the number of physicians who die in normal years. This present large number of graduates is to be contrasted sharply with the figure for 1922, when only 2,500 received the M.D. degree. This figure —an all time low in medical graduates—was also related to war. It followed the low registration of freshmen in 1918, when less consideration was given to the necessity for continued training of physicians in wartime. Fortunately the last war ended relatively quickly, so that this lack of adequate medical preparation was not as much in evidence as it would surely be in the present conflict.

Current Comment

THE CONTROL OF DIPHTHERIA

The epidemiologic study of diphtheria by Russell [1] is of great significance with respect to the control of the disease. In the preface it is pointed out that, while progress has been made in reducing the deaths from diphtheria in England and Wales, the advance "is disappointing in view of the fact that, of the infectious diseases of childhood, diphtheria is the one of which exact biological knowledge is most complete and was earliest obtained." Russell's figures show a decline of nearly 60 per cent in the death rate from diphtheria in England and Wales during the past forty years, but this decline is "unsatisfactory" compared with the reduction of 80 per cent of the mortality of diphtheria in white children aged 1 to 15 years in the United States between 1920 and 1938. In this decline in the United States active immunization of children against diphtheria is a factor of major importance. The number of children immunized in Britain before 1940 was small, but since then good progress has been made and at the end of 1942 46.5 per cent of the child population under 15 in England and Wales had been immunized. Russell discusses particularly the effects of active immunization on the incidence of diphtheria in New York City and Toronto. His summary follows:

> There is very strong evidence that immunization, particularly since the inclusion of preschool children, has reduced the morbidity and the mortality from diphtheria in New York City and in Toronto. The statistical experience of diphtheria in these cities in the postimmunization period is significantly better than might have been expected from the trend of either the morbidity or the mortality in the preimmunization period. According to past experience the disease had a periodicity of six years in New York and of four years in Toronto. On this basis there should have been epidemics in both cities between 1930 and 1940, but none has occurred; the best explanation of this absence is that the health authorities in both cities, by artificially immunizing the school and preschool children, have prevented the occurrence of the epidemics.

Mass immunization in Canada and in the United States has saved thousands of lives which otherwise

1. Russell, W. T.: The Epidemiology of Diphtheria During the Last Forty Years, Medical Research Council, Special Report Series, No. 247, London, 1943.

would have been lost. Present indications are that active immunization against diphtheria is the best means at hand to control the disease and should be used "on the widest scale possible."

"RECREATION—A RESOURCE OF WAR"

Recreation and relaxation are a definite contribution to the war effort.[1] Obviously the American people in these days cannot have the same kind or amount of relaxation or recreation that prevailed in normal times; many do not realize, however, that the opposite extreme—omission of recreation or relaxation—is detrimental to the war effort. A human being cannot exist continuously on an artificially high plane of productive effort or emotional tension. He must have release and relief, especially from the high intensity of machine production and from the psychologic strains of war. A pamphlet just made available by the Federal Security Agency tells what can be done toward community recreation by public agencies, private social agencies, labor unions, war plants, commercial enterprises and churches and in housing projects, dormitories and trailer camps. There is an extensive check list of recreational programs including social activities, active games and sports, music, arts and crafts. References are given, additional publications, and sources of further information. A more comprehensive report entitled "Spare Time—A War Asset for War Workers" describes the experiences of some communities and serves as an example of what might be done. Copies of this report can be had without charge by addressing the Division of Recreation, Office of Community War Services, Federal Security Agency, Washington 25, D. C.

POSTWAR EDUCATIONAL FACILITIES

Recognizing that large numbers of physicians will be seeking advanced training immediately after the war, the Council on Medical Education and Hospitals is making a careful study of the educational facilities in the graduate and postgraduate fields. A preliminary survey has already been instituted to determine what institutions and agencies will be able to expand their regular educational activities to meet additional postwar needs. Questionnaires were sent to all undergraduate and graduate medical schools, intern and residency hospitals, state medical associations, departments of health and other agencies interested in graduate or postgraduate education. The response has indeed been gratifying, for individual reports indicate that constructive planning is under way and that institutions are anxious to cooperate to the full limit of their facilities. The returns are not yet complete, but the available data are now being evaluated and will be supplemented by further studies in the near future, so that complete lists of facilities will be available to physicians returning from the war. These include hospital residencies, fellowships, basic science courses, graduate studies and short term refresher courses in the various branches of medicine. Many physicians will wish to resume courses interrupted by the call to military service, while others will enter new training programs in preparation for general or special practice. Those who remain in military service after the war will be able to increase their professional training through the educational programs of the respective services. Even under wartime conditions, opportunities are being provided for specialty training in Army and Navy hospitals for which credit may be assigned by the individual certifying boards. The large number of physicians who return to civilian life will likewise find that the medical profession, the schools and the hospitals stand ready to meet the educational needs of the postwar period.

1. "Recreation—A Resource of War," a pamphlet publication of the Federal Security Agency, Division of Recreation, Office of Community War Services, Washington 25, D. C.

THE MEDICOLEGAL NECROPSY

In discussing the medicolegal necropsy in the symposium on legal medicine at the meeting of the American Society of Clinical Pathologists in Philadelphia, a year ago, Moritz[1] emphasized certain obvious shortcomings in law that hinder the use of the necropsy in the interest of public welfare. In most states, he pointed out, the statutory provisions for the medicolegal investigation of deaths under certain circumstances need to be revised and expanded. For the public good effective provision should be made for official, thorough investigation with necropsy in all deaths "known or suspected to have been caused or contributed to by mechanical, physical or chemical injury, all deaths occurring unexpectedly from obscure causes and all deaths known or suspected to be related to occupation." Investigators for these purposes should be selected on the basis of technical competence rather than politics, and of course the funds and facilities necessary for expert work must be provided. Moritz places the major responsibility for betterment of the low state of forensic pathology in nearly the whole of this country on the pathologists, because they know best what is needed. In planning for postwar medical services, opportunities to advance the usefulness of the medicolegal necropsy should not be neglected.

INFRA-RED TREATMENT OF ELECTRIC OPHTHALMIA

Recently infra-red radiation has been advocated as successful treatment of "flash" burns of the eye due to overexposure to ultraviolet emanation, the usual source being the welders' arc. The practice is at present being evaluated by competent observers. The Joint Committee on Industrial Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology believes that a word of warning is warranted about the practice until additional supporting evidence is available. The harmful effects of any forms of radiation on the eye are sufficiently well known to suggest that physicians who treat flashed eyes refrain from using infra-red lamp treatment until the results of the present research work are made available.

1. Moritz, A. R.: The Medicolegal Necropsy, Am. J. Clin. Path. 13: 123 (March) 1943.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

ARMY

ARMY TAKES OVER TWO NEW YORK HOSPITALS

According to the Bronx *Home News* of July 12 the New Lebanon Hospital at Mount Eden Parkway and the Concourse, New York City, has been taken over by the Army Medical Corps for the duration. At the time of the dedication of the new hospital on June 6 it was equipped with 250 beds. Plans were made, however, to increase this number to 400 in the near future. In addition to general medical and surgical wards there are five operating rooms, a fully equipped dispensary, pediatric division, dental clinic, special wards for the treatment of rheumatic cardiac cases and handicapped children, and laboratories. The regular work of the hospital will be continued at the old hospital building at Westchester and Cauldwell avenues.

According to the New York *Times* of July 1 the Pilgrim State Hospital at Brentwood, L. I., N. Y., has been leased by the War Department in view to making it a 1,500 bed army general hospital. The hospital buildings will be remodeled at a cost of about $2,000,000 and probably will be put in service by Feb. 1, 1944.

BORDER SERVICE MEDAL FOR RESERVE OFFICERS

H. R. 2619, introduced by Foster Stearns of New Hampshire, is aimed to correct an unintentional discrimination against medical reserve officers who were on active duty in the Army between Jan. 1, 1916 and April 6, 1917 and who served elsewhere than on the Mexican border. This bill would make such medical reserve corps officers serving at that time eligible for the Mexican Border Service Medal. The present law makes National Guard officers who served during this period either on the border or elsewhere eligible for this medal. H. R. 2619 would therefore right an injustice to the remaining few, and now aged, physicians who rendered active service in 1916 and 1917 as officers of the old medical reserve corps, as well as to any other member of a reserve component of the army not eligible under existing law to receive this medal.

THE NEWTON D. BAKER GENERAL HOSPITAL

The War Department announced on June 17 that the new 1,727 bed army general hospital under construction near Martinsburg, W. Va., has been named in honor of the late Secretary of War, Newton D. Baker. The hospital will occupy 180 acres located almost 4 miles southeast of Martinsburg, the birthplace of Mr. Baker. The hospital will cost about $5,500,000.

MILITARY DENTAL WORK

Brig. Gen. Robert H. Mills, chief of the Army Dental Corps, recently announced that the Army is now turning out dentures at the rate of 60,000 a month and that 1,600,000 dental fillings are completed each month. More than 2,000,000 soldiers are treated for dental defects of some kind each month. The Army recently ordered 24,000,000 dental burrs with which to care for cavities in the teeth of military personnel. According to a press release from the American Dental Association on July 16 the number of dental officers in the armed forces total 13,000, leaving 1 dentist for every 2,000 civilians in the country. Civilians were therefore advised to take all preventive dental measures possible in the way of mouth hygiene and of nutrition and thus relieve the load on the civilian dentist's shoulders. The civilian should not abandon his regular visits to the dentist but should make his appointments well in advance and then keep them. Civilians also were advised to adhere to a careful program of mouth hygiene and of nutrition. Brushing the teeth properly after every meal becomes a patriotic contribution in that it not only adds to working efficiency in wartime but preserves dental and general health as well.

MAJOR SPRONG RECEIVES THE AIR MEDAL

Major Aaron A. Sprong, flight surgeon with the Eleventh Group for nine months prior to his recent assignment to Strother Field, Kansas, has received notice that the Air Medal will be conferred on him for meritorious achievement while participating in a flight last December 16 in the Solomon Islands. Before entering the Army Air Corps in June 1941, Major Sprong was a practicing physician at Sterling, Kan. Subsequently he was stationed at Randolph Field, Texas, and at Carlisle Barracks, Pennsylvania. He arrived in Hawaii in February 1942, whence he flew to Midway and was present throughout that furious battle. After Midway he flew back to Hawaii. From July 1942 until March 1943 he served in the Solomon Islands. Recently he was ordered to the homeland. Major Sprong graduated from the University of Kansas School of Medicine in 1934.

LIEUT. COL. PERRIN H. LONG IN NORTH AFRICA

Dr. Perrin H. Long, professor of preventive medicine at Johns Hopkins University School of Medicine, Baltimore, according to the Baltimore *Evening Sun* of July 10, is now a lieutenant colonel serving as medical director in the North African war theater. The North American Newspaper Alliance dispatch further concerned a front line treatment for nervous breakdowns which Lieutenant Colonel Long is said to have described as one of the greatest advances in military psychiatry during the war and also a great manpower saver. The type of case on which this treatment has been found effective was formerly erroneously called shell shock. Under the plan of treatment referred to, some of the patients are sent back to duty on the second day, it is said, and they usually ask to go back on the fourth day.

Dr. Long served in the first world war as a private in the U. S. Army and was awarded the Croix de guerre. In view of his pioneer work with the sulfonamide drugs he was sent to Honolulu soon after the Japanese attack on Pearl Harbor to observe the effects of those drugs on the wounded.

FLIGHT SURGEONS' ASSISTANTS

A class of seventy-nine flight surgeons' assistants completed the six weeks course in aviation medicine at the School of Aviation Medicine, Randolph Field, Texas, July 3. Brig. Gen. Eugen G. Reinartz, U. S. Army, is commandant of the school.

MISCELLANEOUS

INCREASED PRODUCTION OF PENICILLIN

Additional facilities for the manufacture of penicillin have been acquired in Rensselaer, N. Y., by the Winthrop Chemical Company, Inc., according to Dr. Theodore G. Klumpp, president of the company. This drug is now allocated exclusively to the armed forces, millions of units being supplied weekly. The "unit" system of measurement derives from Oxford University. Pure penicillin has not yet been isolated. The "Oxford unit" is based on comparison with standard material furnished by Oxford University to laboratories throughout the world. One million units weigh about ⅛ ounce. Sulfonamide resistant cases of gonorrhea can be cured promptly by as little as 100,000 units of penicillin. Larger doses are usually needed for osteomyelitis and other infections.

Penicillin was discovered by Dr. Alexander Fleming, English scientist, in 1929. It was not then available for treatment of disease because of the extremely small quantities that could be produced and the instability of the substance. The present interest in penicillin dates from 1939, when important information regarding the chemistry of the extract was obtained and it was found that the calcium and sodium salts are more stable than the parent substance. The exact structure of penicillin is unknown at present, and until it has been determined artificial production by synthesis is impossible. However, much has been learned about the "empirical" or general chemical formula.

Penicillin is now under strict allocation of the War Production Board for national defense and there is no prospect that a surplus will soon be available for civilian use.

NURSING DIVISION FOR PROCUREMENT AND ASSIGNMENT SERVICE

The Nursing Supply and Distribution Unit of the War Manpower Commission has been made the Nursing Division of the Commission's Procurement and Assignment Service, Paul V. McNutt, chairman of the commission, announced on July 27.

"The objectives of the Nursing Division," Mr. McNutt explained, "are the same as those divisions of the Procurement and Assignment Service now dealing with the dentist, veterinary, physician and sanitary engineer for their professions. They involve the recruitment of sufficient nurses to meet the needs of the armed forces and the provision of minimum adequate nursing care for the civilian population, nonmilitary governmental agencies and industry."

Recommendations regarding the operation of the nursing division will be made to the Directing Board of Procurement and Assignment Service, headed by Dr. Frank H. Lahey, Boston, by a nursing advisory committee. The nursing division is represented on all the present advisory committees to the directing board that are concerned with problems that affect nurses. Miss Katherine Tucker, Philadelphia, and Miss Laura Grant, New Haven, Conn., have been appointed to the directing board.

Miss L. Louise Baker has been named an assistant executive officer of the Procurement and Assignment Service to work under the general direction of the directing board, and Dr. Maxwell Lapham executive officer. She will have the responsibility of carrying out the functions of the nursing division and will be assisted by Miss Ruth A. Heintzelman. The already existing technical, clerical and statistical sections of the Central Office of Procurement and Assignment Service will be utilized, and four nurse consultants will be added to the staff to supervise the work in the field.

The activities of the nursing division in the field will be carried out by separate state and local committees. The Supply and Distribution Committee of the State Nursing Councils for War Service, representing the various nursing organizations in each state and serving without compensation, will act as the state committee for nurses for the Procurement and Assignment Service, and the local nursing council for war service will act as the local committee in each community. Both state and local committees will function independently of but in cooperation with the state committees for physicians of the Procurement and Assignment Service.

CONFERENCE ON VENEREAL DISEASE PROGRAM

Representatives of the Anglo-American Caribbean Commission and members of the Interdepartmental Committee on Venereal Disease held a three day conference in Washington late in June to consider the inauguration of an adequate program for control of venereal disease in the Caribbean area. The conference was attended by representatives of the British government, of the U. S. Army, Navy, Public Health Service, State Department, Federal Security Agency, Federal Works Agency and Bureau of the Budget of the Rockefeller Foundation and of the American Social Hygiene Association.

Although the present programs for venereal disease control in Puerto Rico and Panama have brought about a reduction in infection rates, there is great need for expansion of facilities and additional trained personnel in these areas. In the Trinidad area, however, there has been apparently no program of venereal disease control and the inauguration of one will involve, literally, according to Dr. N. M. MacLennan, Great Britain's director of medical services in Trinidad, working from the ground up and our U. S. Army and Navy officials now working in that area corroborated his opinion. Public health legislation is also needed as a foundation for adequate control measures in Trinidad. The proposed budget for an immediate control program in Trinidad would set up a fund for establishing clinical service there and a well equipped laboratory, staffed by physicians, nurses and technicians recruited when possible from the native personnel. The establishment of the proposed plan for Trinidad would need a budget for the first year of about $200,000 to be divided between Great Britain and the United States. The necessary expansion of the existing programs in Puerto Rico and Panama could be accomplished by yearly budgets of $480,000 and $300,000 respectively, it was estimated.

The last day of the conference was devoted to discussion on malaria control in the Caribbean area with the object of developing a coordinated plan for the control of malaria in both the armed forces there and in the civilian population.

RESTRICTION ON MANUFACTURE OF MEDICAL FURNITURE

The War Production Board issued on July 13 Schedule 3 to General Limitation Order L-214, placing restrictions on the manufacture of items and models of medical and surgical furniture and related equipment. This order provides, among other things, that no manufacturer shall make or continue to make any items of such equipment and furniture other than those on list A attached to the schedule, and the listed items shall be made only in the number of models specified on the list which conform with the descriptions set forth. However, a manufacturer may make any number of models of medical and surgical furniture and related equipment not listed on list A and any number of models and items on list A in excess of the number specified provided they do not contain any metal other than iron and carbon steel and that the weight of such metal comprises not more than 25 per cent of the total weight of the model. No manufacturer shall incorporate in any medical and surgical furniture and related equipment any stainless steel or other alloy steel, monel metal, copper, copper base alloy, nickel, aluminum or zinc, except as specified in list A. This restriction does not apply to the use of copper and copper base alloy in the electrical circuit or electrical connections of any items listed in list A.

MEDICAL AND SURGICAL RELIEF COMMITTEE OF AMERICA

The Medical and Surgical Relief Committee of America, with headquarters at 420 Lexington Avenue, New York, has launched a campaign for medical supplies to be parachuted to guerilla bands in France in answer to an appeal by Capt. Douglas Smith, French Foreign Legion representative of Gens. Charles de Gaulle and Georges Catroux. A goal of one thousand surgical kits for units of twenty-five men, and twenty-five thousand individual first aid kits has been set.

PUBLIC HEALTH UNDER HITLER

According to NDZ, Germany, of February 24 the call-up of doctors and "feldschers" for service at the front has made it necessary to increase the number of women employed on youth welfare work and in the wartime health services. A large proportion of this work is done by the Health Service Girls of the HJ, whose training was considerably extended last year. On principle, all 16 year old girls receive an appropriate basic training consisting in the general structure of the body, hygiene, health and physiology, and first aid. This training, which is carried out in twelve lectures of two hours each, is in the hands of efficient doctors and members of the DRK. By passing the final test the girl acquires the title of "Health Service Girl." Then follow the Working Groups for Health Living of the "Faith and Beauty" Scheme of the BdM, which provide additional training in the fields of nutrition and nursing. Over 73,000 girls were trained and became Health Service Girls last year, a considerable increase as compared with the previous years. In all, 175,000 Health Service Girls are now available.

Transocean news agency, June 13, reports from Berlin that a number of institutes have been established in the eastern regions occupied by the German forces to combat epidemic diseases. These institutes are to protect German soldiers and civilians. Of the greatest importance is the German Hygienic Institute for the Ostland at Riga, which is equipped with all modern apparatus, mobile and stationary bacteriologic field laboratories, several mobile delousing trains and others for producing drinking water. The institute also has trains fitted with everything necessary for the medical examination of the population even in the remotest part of the Ostland. The institute has a department for medical research and another for training practical helpers in fighting diseases. Similar institutes were also opened at Kiev and at Kherson. The latter is chiefly concerned with fighting malaria.

In order to save lives which are being lost owing to the shortage of German specialists, the German Volkshilfe has established six maternity homes at Zemun, Indjija, Ruma, Vinkovci Djakovo and Verec, according to the *Deutsche Zeitung* in Kroatien, Yugoslavia, of May 23. The home at Verec must be closed for an indefinite period because the locality is unsafe. These homes have been established primarily for Volksdeutsche women who are expecting children under difficult conditions in small far away settlements, where they are in continuous danger or are continuously being attacked by the bandits.

According to DNB, Germany, June 5, the war has considerably intensified the need for blood donors, and in order to meet it the SA, members of which formed the core of the official blood donors' organization even before the war, has increased its efforts in this respect. The Hansa Group of the SA alone has till now given 190,623 cc. of blood and many other groups have reported similarly high figures. The Berlin-Brandenburg group has 2,900 blood donors for the armed forces alone at its disposal. The list of donors is headed by an obersturmfuehrer of the SA, who has given a total of 74,520 cc. of blood on 191 occasions.

According to Transocean, June 11, the former dean of the Leningrad Medical Institute and head of the surgical department, Prof. W. Schaak, has been appointed chief physician of Potsdam Municipal Hospital. Schaak was looked on in Soviet Russia as one of the greatest specialists in surgery. In April 1942 he was evacuated from Leningrad to Kislovodsk. When the German troops in the summer of 1942 approached the Kislovodsk area, Schaak succeeded in reaching the German medical corps. Up to his appointment to the Potsdam hospital Professor Schaak served as a surgeon in a German field hospital.

According to NPD of May 29 a special German-Russian medical dictionary has been published for all doctors and officials employed in the health service in the East. This will facilitate the comprehensive work of the German doctors for the Russian civil population.

DNB (for Europe), June 8, reports from Riga that in the Districts-General of Estonia, Latvia and Lithuania a new law comes into force on July 1 replacing the existing Bolshevik law on health and combined health and accident insurance, which closely follows German law. Considerable improvement is achieved, particularly where insurance grants are concerned. In each of the Districts-General an independent health insurance office will be set up as part of the autonomous administration.

Pester Lloyd, Hungary, of May 7 states that in April there were 27 cases of typhus in Budapest, and 11 cases of endemic typhoid were brought from the country to the Budapest hospitals.

Sari Bor writes from Breslau, according to the *Magyar Nemzet* of May 5, that "The people of Breslau vigorously protest against the suggestion that there is a peaceful atmosphere in the town. They are perfectly justified in doing so; for, although owing to its favorable situation the town has had little direct experience of the war, air raids are not unknown even here. The people have simply suffered more seldom and less from them than the people of most German towns.

According to *Pester Lloyd*, Hungary, of May 4 the minister of agriculture has made the inoculation of pigs against plague obligatory in the counties of Barcs, Hont, Csik, Csongrad, Esztergom, Heves, Kolozs, Nograd, Szabolcs, Udverhely and Ung and in the municipalities of Ungvar (Uzhorod) and Komarom (Komarno).

All the more active is the war effort in the old capital of Silesia in other spheres. As the most easterly metropolis in the reich, it is the first place at which the hospital trains from the Russian front arrive. At the present time the town is looking after 160,000 wounded. It deals with this gigantic task for the most part from its own resources, with its own doctors and with enormous numbers of voluntary nurses. There are doctors who are on the street from dawn till late in the evening before they can get through their day's work in the six or seven hospitals with which they are concerned. . . ."

According to *le Journal*, May 25, French and German medical services inspecting Frenchmen working in Germany made distressing observations. The third contingent of the "releves" will mobilize 220,000 workers for Germany and 180,000 for the Todt Organization in France. Heretofore the percentage of sick and unfit did not exceed normal limits, but today there has been an enormous increase. Those registered as invalid in Paris were over 50 per cent, and in the provinces 36 per cent. Those escaping labor conscription owing to ill health are chiefly suffering from tuberculosis and syphilis.

According to Radio Lyons, June 24, a law has been published regulating the medical protection of French workers in Germany. Doctors, chemists and dentists will be mobilized as well as students of medicine, pharmacy and dental surgery. Persons liable to mobilization will be designated by the High Council for Medicine and Pharmacy.

Sydsvenska Dagbladet, Malmö, May 23, reports that there are about three hundred doctors aged 80 and over and three thousand aged 70 and over in practice in Germany.

Radio Lyons, June 10, reports that the Regional Councils of the Medical Profession (Ordres de médecins) will take a census of medical vacancies caused by the ban on foreign doctors who are forbidden to carry on their practice. Vacancies will be reserved for French doctors who are at present prisoners of war and put forward an application to this effect.

NPD, Czechoslovakia, June 3, reports from Bratislava that the birth rate in Slovakia has risen by 80 per cent since 1939, which is mainly due to the introduction of family allowances.

ORGANIZATION SECTION

OFFICIAL NOTES

HEALTH EDUCATORS VISIT A. M. A. HEADQUARTERS

Twenty-seven young women holding fellowships in health education for training at the University of North Carolina, made possible by the W. K. Kellogg Foundation, Battle Creek, Mich., through a grant to the United States Public Health Service, spent the week of August 2 to 6 at the headquarters of the American Medical Association in classes and demonstrations of the health education work of the Association. Such demonstrations, authorized by the Board of Trustees of the American Medical Association, are under the direction of the Bureau of Health Education. The visit to the American Medical Association was part of a three months assignment of field training in connection with the fellowship courses. From the American Medical Association the group went to the Cleveland Health Museum, where they will spend the rest of the month of August.

SUMMER HEALTH HINTS

The last program for the series of broadcasts over WLS on Thursdays at 2:45 under the title "Summer Health Hints" will be:

August 19. "Hay Fever Time."

A new series of broadcasts on appropriate, timely health topics is contemplated on station WLS beginning in early autumn.

THE CURRENT TAX PAYMENT ACT OF 1943

Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association

The first step to put federal income taxpayers on a pay as you go basis, under the Current Tax Payment Act of 1943, approved by the President on June 9, was taken on July 1, when the withholding features of the new act became effective. Since that date employers have been required to withhold 20 per cent of the compensation paid employees in excess of withholding exemptions of $624 for single persons, $1,248 for married persons or heads of families and $312 for each dependent.

GROUPS EXEMPTED FROM WITHHOLDING

Designated groups are exempted from the withholding procedure, namely (1) members of the military and naval forces, (2) agricultural workers, (3) domestic employees, (4) casual employees, (5) United States citizens or residents working for a foreign government, including the Philippines, (6) nonresident aliens except, unless exempted by regulations, Canadians and Mexicans, (7) United States citizens or residents if the major part of the work done by them for the employer during the calendar year was done outside of the country and (8) ministers of the gospel.

METHOD OF WITHHOLDING

Employers may follow one of two methods in withholding the tax. They may compute with exactness the amount, that is, 20 per cent of the wage or salary above exemptions, or they may withhold in accordance with wage groupings contained in tables incorporated in the act. Most employers will use the latter method because of its simplicity. The use of the tables, however, will in some instances result in overwithholding, but the excess withheld may be adjusted when the taxpayer files his final return, as he must do on or before March 15, 1944.

DISPOSITION OF WITHHELD TAXES; REPORTS

Physicians who are employers have since July 1 been withholding the 20 per cent tax from the wages of employees who come within the withholding provisions of the act. If a total of more than $100 is withheld during any month, the amount withheld must be transmitted, within ten days after the close of the calendar month, to a depositary authorized by the Secretary of the Treasury; the names and addresses of these may be obtained from any bank. Physicians who withhold less than $100 a month must make quarterly returns on form W-1 to their collectors of internal revenue, showing the aggregate amount of taxes withheld during the quarter. This return must be filed on or before the last day of the calendar month following the close of each quarter and must be accompanied by the payment of the full amount of the tax withheld. The first return will be due not later than Oct. 31, 1943, covering the months of July, August and September.

Physicians must furnish each employee a "Statement of Income Tax Withheld on Wages" (form W-2), to be delivered to the employee on or before January 31 next. If employment terminates before the end of the year, the statement must be furnished within thirty days of the date on which the last payment is made. Duplicate copies of such statements must be retained by physicians and transmitted to the collector of internal revenue with the final return for the fourth quarter of the calendar year. All forms may be secured from the collector's office. Physicians should obtain from the same source a copy of circular WT, which will explain in detail the duties imposed on employers in connection with the withholding process, the types of records to be kept and the various kinds of reports to be made.

PHYSICIANS WHO ARE EMPLOYEES

Physicians who are employed on a salary basis went on a current tax payment basis, July 1. They normally need not concern themselves with the procedure. They will be furnished by their employers all statements to which employees generally are entitled. Many such physicians, however, will be required to file on or before Sept. 15, 1943, a Declaration of Estimated Tax and will be required together with all other taxpayers to file a final return for 1943 on or before March 15, 1944, at which time necessary adjustments of taxes can be made.

DECLARATION OF ESTIMATED TAX

The withholding procedure has placed on a current payment basis an estimated fifty million federal income and victory taxpayers. There remains another group, the self employed and employees expressly exempted from the withholding process, who are yet to be placed on a pay as you go basis. To accomplish that end, a second step must be taken on or before Sept. 15, 1943, when the following persons will be required to file with the collector of internal revenue a Declaration of Estimated Tax covering the calendar year 1943:

1. Single or married but not living with a spouse at the date prescribed for the making of the declaration (whether or not head of a family), if he had for the taxable year 1942, or reasonably expects to have for the taxable year 1943, (*a*) gross income of more than $2,700 from wages subject to withholding or (*b*) gross income of more than $100 from sources other than wages subject to withholding, and also gross income of $500 or more from all sources.

2. Married and living with spouse at the date prescribed for the making of the declaration, if he had for the taxable year 1942, or reasonably expects to have for the taxable year 1943, (*a*) gross income from wages subject to withholding which, when added to gross income from such wages of his spouse,

exceeds $3,500, or (*b*) gross income other than from wages subject to withholding which, when added to gross income other than from such wages of his spouse, exceeds $100, and also his gross income from all sources exceeds $624 for 1943 or the aggregate gross income from all sources of both spouses amounts to $1,200 or more for either 1942 or 1943.

3. Individuals, regardless of marital status, who were required to file an income tax return for the taxable year 1942 and whose wages subject to withholding for the taxable year 1943 are reasonably expected to be less than such wages for the taxable year 1942.

CONTENTS OF DECLARATION

With relatively few exceptions, all physicians will be required to file the declaration. Forms for use in filing the declaration have not been released, but it is understood that they will be mailed to taxpayers on or before September 1. They will be short and will differ materially from previous income tax returns. On them the taxpayer will merely state the amount of his estimated income tax and net victory tax liability for the year, based on the estimated income and deductions and allowing for the current credit against the victory tax liability, to be explained later, in case the taxpayer elects to take the credit currently. From the estimated taxes due there may be subtracted the two instalments already paid in 1943, any amount, in the case of employees, withheld during the year on account of the victory tax as such and on account of the 20 per cent withholding that went into effect July 1, together with estimated amounts that will be withheld during the remainder of the year. The difference will represent the remainder of the tax due on account of 1943 income. One half of the total tax due must be paid when the declaration is filed and the remainder on or before December 15, subject to the right of a taxpayer in service to postpone payment if his ability to pay is materially affected by reason of his service.

While the declaration will be short, it will be necessary for most physicians to compute their taxes in the same manner in which computations have been made in the past. There has been no change in rates and no change in exemptions and deductions, except in the case of taxpayers in the armed forces. Physicians, therefore, may rely on the statement that was published in THE JOURNAL, Jan. 30, 1943 for suggestions as to the credits and exemptions that may be claimed. The change that has been recently made relates solely to the method and time of the payment of victory and income taxes.

Form 1040-ES will be used in filing the declaration. Complete instructions will accompany the form when it is sent to taxpayers, including a table that will aid in the computation of estimated income and victory tax for 1943 on incomes not over $10,000. A careful study of the instructions will simplify the procedure of completing the declaration.

UNDERESTIMATED TAX; PENALTY

The actual income and deductions can be accurately computed by physicians for the part of the calendar year immediately preceding the filing of the declaration; for the remainder of the calendar year, estimates must be carefully made in view of the penalty of 6 per cent that attaches if the estimated tax proves to be 20 per cent less than the tax actually due. If, before December 15, a taxpayer discovers that he has underestimated his tax by more than 20 per cent, he should on that date file an amended declaration, correct his mistake and avoid the possibility of penalty.

SUBSTITUTION OF 1942 TAX

Having estimated his 1943 tax liability on the basis of actual and anticipated 1943 income, exemptions and credits, the physician who is not in service must then compare the estimated tax with the 1942 tax computed last March. If the 1942 tax was greater, he must enter the 1942 tax on the declaration and pay that tax instead of the 1943 estimate. In order to prevent any advantage accruing to taxpayers by reason of the shift to a pay as you go basis, the law provides in effect that the current 1943 tax liability shall not be less than the 1942 liability. This does not apply to taxpayers who are in the armed forces, as will be explained later.

ABATEMENT OF TAX

To prevent an undue doubling up of taxes as a result of the change to a current collection basis, the law provides for an abatement of 75 per cent of one year's tax, or the first $50 thereof, whichever amount is the greater. The abatement is based on the lower tax of the two years, except in the case of taxpayers in service. If the 1943 tax is lower, 75 per cent of it will be abated. If the 1942 tax is lower, 75 per cent of it will be abated. Physicians need not give this abatement procedure any concern at the time the declaration is filed. The 25 per cent unabated portion of the tax will become a liability on March 15, 1944, when the final return for 1943 is filed. The unabated portion may then be paid in full or one half must be then paid and the remaining half paid on or before March 15, 1945.

THE VICTORY TAX

The Revenue Act of 1942 imposes a special victory tax on individuals amounting to 5 per cent of their victory tax net income. This tax is in addition to all other taxes imposed by the act, applies to income received after Dec. 31, 1942 and will continue in effect for the duration of the war unless sooner repealed. A discussion of this tax as it relates to the medical profession was published in THE JOURNAL, Dec. 5, 1942. That discussion, however, emphasized the withholding of the tax by physicians from the wages of employees and the withholding of the tax from the salaries of physicians who are themselves in an employee category. Physicians now must estimate the amount of the victory tax they themselves must pay during the calendar year 1943 and report that amount on the declaration to be filed on or before September 15.

VICTORY TAX GROSS AND NET INCOME

The 5 per cent victory tax is imposed not on the taxpayer's net income that serves as a basis for normal and surtaxes but on his victory tax net income. Many of the deductions allowable from gross income to arrive at net income for income tax purposes are not allowable in determining net income for victory tax purposes. Physicians should keep that fact in mind in estimating the special tax.

Gross income for victory tax purposes includes all income except (1) gain from the sale or exchange of capital assets, (2) interest on United States government obligations allowable as a credit for income tax purposes and (3) compensation for injury or sickness includible otherwise as a part of gross income because of a deduction claimed for medical expenditures. Victory tax net income is gross income minus the following exclusions: 1. Business expenses allowable generally for income tax purposes. 2. Interest and taxes only to the extent incurred in carrying on a trade or business, or incurred for the production or collection of income or for the management, conservation or maintenance of property held for the production of income. For ordinary income tax purposes interest and taxes are deductible even if incurred for personal purposes, as, for example, interest on personal loans and taxes on property used as a home. (3) Uncompensated losses sustained during the year if incurred in a trade or business. Losses from wager transactions may be excluded only to the extent of the gains from such transactions. 4. Depreciation, depletion, amortization, pension trust contributions, alimony payments (to the extent deductible for ordinary income tax purposes) and certain other exclusions not of particular concern to physicians. Charitable contributions are ordinarily not deductible from gross income for victory tax purposes. In the case of a taxpayer who uses the simplified return form, his victory tax net income is his gross income.

VICTORY TAX EXEMPTION

From the victory tax net income a specific exemption of $624 is allowed each taxpayer as a credit, irrespective of his marital status. There is no other personal exemption. The liability on account of the victory tax, therefore, will be computed on the basis of 5 per cent of the victory tax net income after the $624 credit has been taken, and the amount so computed must be included in the declaration to be filed on or before September 15.

VICTORY TAX WITHHELD

Amounts withheld from the salaries of physician employees during the year on account of the victory tax may be credited against the computed tax. For the first half of 1943 5 per cent was withheld for victory tax purposes. Since July 1 the 20 per cent withholding includes 17 per cent for income tax purposes and 3 per cent for victory tax purposes, it being assumed that most taxpayers subject to withholding will take advantage currently of the postwar credit, later to be discussed, and that therefore the 3 per cent will cover the net victory tax due. Physician employees, however, will not be required when they file their declarations to break down the 20 per cent withholding to indicate the amount withheld for income tax purposes and for victory tax purposes.

POSTWAR CREDIT OR REFUND OF VICTORY TAX

As pointed out in THE JOURNAL for Dec. 5, 1942, the Revenue Act of 1942 provides that as soon as practicable after the date of cessation of hostilities the following amounts of victory tax paid for each taxable year will be credited against any income tax payment or instalment thereof then due from the taxpayer and any balance will be refunded immediately:

1. In the case of a single person or person married but not living with husband or wife, 25 per cent of the victory tax or $500, whichever is the lesser.

2. In the case of the head of a family, 40 per cent of the victory tax or $1,000, whichever is the lesser. In the case of a married person living with husband or wife where separate returns are filed by each, 40 per cent of the victory tax or $500, whichever is the lesser. In the case of a married person living with husband or wife where a separate return is filed by one spouse and no return is filed by the other spouse, or in case of a husband and wife filing a joint return, only one such credit will be allowed and such credit may not exceed 40 per cent of the victory tax or $1,000, whichever is the lesser.

3. For each dependent, excluding as a dependent in the case of the head of a family one who would be excluded as a dependent for income tax purposes, 2 per cent or $100, whichever is the lesser.

If during the taxable year the status of the taxpayer (other than a taxpayer whose gross income is $3,000 or under and who uses the simplified return form) changes with respect to his marital relationship or with respect to his dependents, the amount of the credit or refund on the victory tax for the year will be apportioned under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury in accordance with the months prior to and after the change. For the purpose of such apportionment the fractional part of a month will be disregarded unless it amounts to more than one half of a month, in which case it will be considered as a month.

CURRENT CREDIT FOR POSTWAR REFUND

A taxpayer may, when he files his declaration on September 15, take credit currently for the postwar refund of the victory tax to which he would be entitled after the war. The law provides that there may be allowed as a credit against the victory tax, to the extent of the postwar credit, (1) the amount paid by the taxpayer during the year as premiums on life insurance, in force on Sept. 1, 1942 on his own life, on the life of his spouse or a dependent, less the amount of dividends received from such insurance, (2) the amount by which the smallest amount of indebtedness of a taxpayer outstanding at any time during the period beginning Sept. 1, 1942 and ending Dec. 31, 1942 exceeds the amount of indebtedness of the taxpayer outstanding at the close of the taxable year, and (3) the amount by which the amount of obligations of the United States owned by the taxpayer on the last day of the taxable year, or Dec. 31, 1943, exceeds the amount of such obligations owned by the taxpayer on Dec. 31, 1942.

If the taxpayer owns an obligation of the United States jointly with one other person, he will be entitled to full credit for the amount of the obligation only in case he himself paid for it. The term "obligation of the United States" means United States saving bonds, series E, F and G. The term "amount of obligations" means the amount paid for the obligations. The term "owned" means acquired by purchase.

An example may serve to clarify. Dr. A, an unmarried physician with no dependents, at the time he files his declaration on September 15 estimates that he will owe a victory tax of $100. During 1943 Dr. A had purchased United States saving bonds, or paid premiums on life insurance, or reduced indebtedness, expending a total of $1,000 for such purposes. Dr. A may pay the victory tax of $100 during 1943 and after the cessation of hostilities obtain a refund or credit of 25 per cent of the tax, or $25, the percentage of credit that will be allowed a single person. Or, when he files his declaration he may reduce his victory tax by taking credit for the amount expended for bonds, insurance premiums or reduction of indebtedness, but only to the extent of the postwar credit to which he would be entitled after the cessation of hostilities, that is, $25. In one case Dr. A pays the full victory tax of $100 and gets a refund or credit later; in the other case he pays $75 and will not thereafter receive a credit or refund.

PHYSICIANS IN MILITARY AND NAVAL SERVICE

While the Current Tax Payment Act does not refer to taxpayers in service in connection with the filing of declarations, it is understood that the requirements heretofore existing as to the necessity of filing regular income tax returns will be extended to declarations. Physicians in service, therefore, should comply promptly with the new requirement, but if they are on duty outside the United States they may delay filing the declaration until after the war or until after their separation from the service, whichever may be earlier.

The requirement in the new act that taxpayers must in effect pay for 1943 a tax equal to the higher tax of the two years 1942 or 1943 does not apply to taxpayers in service. As explained in House Document No. 237—Current Tax Payment Act of 1943: Questions and Answers—this special relief provision for taxpayers in service will be applied as follows:

> Members of the armed forces do not have to pay on the higher of the two years 1942 or 1943, with respect to that portion of the 1942 tax which is attributable to "earned" income (i. e., from wages or salary) not in excess of $14,000. Thus, if a soldier earned $3,000 in 1942 as a civilian, incurring a tax liability of say $300, and has no tax liability on his 1943 service pay, he would not be required to increase his 1943 liability by the excess of the 1942 tax over the 1943 tax. In effect, his 1942 liability is completely abated.
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> On the other hand, if part of the serviceman's 1942 tax was attributable to "earned" income and part to "unearned" income (i. e., income from investments or wage and salary income in excess of $14,000), the 1943 tax will be increased by the amount by which the tax on the "unearned" portion of the 1942 income exceeds the 1943 tax. For example, suppose a single man had a civilian salary of $15,000 in 1942 and had income from rents, dividends and interest amounting to $5,000, on which the total tax was $6,800. In 1943 he went into the Army as an officer and receives a service pay of $2,400. His final 1943 tax liability would be computed as follows:
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> He would figure the tax on his 1943 service pay, after excluding from consideration the first $1,500 thereof under the provisions of the new law. The resulting 1943 tax would be approximately $80. He would then add to his 1943 tax liability the excess of the 1942 tax over the 1943 tax, after deducting from such excess the amount by which the 1942 tax was increased by reason of the inclusion of the first $14,000 of the amount of the "earned" net income in 1942. He finds that the 1942 tax exceeds the 1943 tax by $6,720 ($6,800 minus $80). He recomputes the 1942 tax to see how much of this excess was due to the inclusion of the "earned" income (i. e. from wages or salary) up to $14,000. Subtracting from the 1942 income all salary income not in excess of $14,000 would leave $1,000 of the salary income and the $5,000 of investment income, or a total of $6,000, on which the tax would be approximately $1,200. This shows that the 1942 tax was increased by $5,600 (the excess of $6,800 over $1,200) by reason of the inclusion of the "earned" income up to $14,000. Therefore the $5,600 is subtracted from the $6,720 excess of the 1942 tax over the 1943 tax, leaving a balance of $1,120, which is the amount to be added to the tax on 1943 income in computing the final 1943 liability of the serviceman in question. His total 1943 liability, therefore, would be $80 (the tax on his 1943 service income) plus $1,120 (the excess of the 1942 tax attributable to "unearned" income over the 1943 tax), or a total of $1,200.
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> This is the amount he would include in his Declaration of Estimated Tax for 1943. In this instance he still pays on the higher of the two years after eliminating from the 1942 income all wage and salary income up to $14,000. The serviceman in question would also owe the unabated portion of the lesser year's tax, 25 per cent of the basic 1943 liability of $80 in this case, or $20.

SPECIAL EXEMPTION FOR MEMBERS OF ARMED FORCES

The new act declares nontaxable the first $1,500 of the service pay of members of the armed forces, including commissioned officers. Under the prior law, servicemen below the grade of commissioned officers were permitted to exclude from gross income the first $250 of their annual pay if single,

and the first $400 if married. In effect, the new law raises the personal exemption of servicemen to $2,000 if single and $2,700 if married, plus $350 for each dependent.

CANCELLATION OF TAX ON DEATH OF SERVICEMEN

Any tax liability owed by a member of the military or naval forces who dies in active service is canceled, the provision being retroactive to Dec. 7, 1941. If the tax has already been assessed it will be abated and if the tax has already been collected it will be refunded as an overpayment. This tax forgiveness applies only to income taxes, not to the estate tax. In view of the $60,000 exemption from estate tax liability, possibly it was assumed that the estates of most deceased servicemen would not be liable to the estate tax.

FINAL RETURN FOR 1943

Taxpayers will be required to file on or before March 15, 1944 a final return for 1943 when necessary adjustments can be made. At the same time an estimate for 1944 taxes must be made. The final return for 1943 and the estimate for 1944 will be made, it is understood, on a single form. Taxpayers not subject to withholding will be permitted to pay their 1944 taxes quarterly, the first payment being due when the estimate is filed.

WOMAN'S AUXILIARY

Arkansas

Dr. Herbert K. Abrams of the Miller County Public Health Service was the chief speaker at the public relations meeting of the Bowie-Miller County medical auxiliary recently. Represenatives of the parent-teacher associations were among the guests.

California

The Woman's Auxiliary to the San Francisco County Medical Society set a day in February at the Irwin Memorial Blood Bank, 2180 Washington Street, for its members to donate blood for use in local hospitals and to build a reserve in case of enemy attack or other disaster. The Irwin Memorial Blood Bank operates under the direction of the county medical society, and, as a project, the members of the auxiliary entirely staff the following departments: couriers, drivers of the blood bank station wagon delivery service, and Canteen Corps. These volunteers work six days a week, from 8 a. m. to 6 p. m. This service has been in operation for the past year. The Telephone Committee, under the direction of Mrs. Frank Hand, contracted the membership to make appointments and furnish all necessary information. Members were asked to give the usual pint of blood needed for adult transfusions or a portion of a pint for infant transfusions, a unique service of the Irwin Memorial Blood Bank.

The regular meeting of the Alameda County auxiliary was held at the Claremont Country Club on February 19, with Mrs. T. Floyd Bell presiding. The third Tuesday of each month, the members take over Hospitality House and serve during the day and evening. All food is donated by members. Mrs. Rossner Graham, Hospitality House chairman, has announced that cash contributions during January totaled $45. The fund necessary to carry on this work is dependent on the voluntary contributions of members.

Indiana

Dr. Carl H. McCaskey, president of the Indiana State Medical Association, and Dr. Homer G. Hamer, chairman, advisory committee, Woman's Auxiliary to the Indiana State Medical Society, were guest speakers at the meeting of the auxiliary in May. A survey of the work done by the members of the Allen and Marion counties in civic and war service was presented. Allen County has a complete cross index file of all doctors' wives in their community and the kind of work done by them.

Oregon

The Woman's Auxiliary to the Oregon State Medical Society has been concentrating mainly on work for the Medical Surgical Relief Committee of America. Instruments and samples of drugs have been collected from doctors' offices. Appeals have been made to housewives for scissors, wooden handled knives and mirrors. In this field the dental auxiliary and through it the Eastern Star has been of great help. When the call came for fishing tackle, anglers' clubs were approached. With their aid a great deal of deep sea tackle has been obtained for use on life rafts. Many of the counties have given money with which to purchase emergency medical kits.

A streamlined annual meeting of the auxiliary will be held when the medical society meets on September 4-5 in Portland. Two new auxiliaries have been organized in Baker County and in Ontario County.

Pennsylvania

The Philadelphia auxiliary held a bazaar recently in the County Medical Society Building, Philadelphia, from which more than $800 was netted as a result of the efforts of the chairman of welfare, Mrs. John B. Lownes, and her committee. The executive board with the president, Mrs. George C. Yeager, in the chair, voted to give $500 to the Aid Association of the Philadelphia County Medical Society. The speaker was the Rev. W. Sherman Skinner, pastor of the First Presbyterian Church in Germantown.

Mrs. Anna de Planter Bowes, chief of the division of nutrition, state department of health, recently addressed the Cambria auxiliary.

The Huntingdon auxiliary recently sponsored its first Health Day. Mrs. Anna de Planter Bowes spoke on "Food Is Power." About 250 people were in attendance.

Texas

Kerr-Kendall-Gillespie-Bandera counties auxiliary held a meeting recently in Fredericksburg. Members reported a total of one hundred and eight hours on Red Cross work during December and the making of 368 surgical dressings. The auxiliary voted a donation of $10 to the Memorial Fund and $5 each to the state student funds for 1943. Mrs. Walter Minsch, reporting on the sale of tuberculosis seals in Kerr County, which project was sponsored by the auxiliary, announced that $765 had been received to date. The auxiliary voted to buy a $25 War Bond to be placed in the savings with other bonds already owned by the auxiliary.

Virginia

In spite of the difficulty in securing linens, the annual hospital linen shower of the Petersburg auxiliary netted donations of 116 sheets, 17 spreads, 73 bath towels, 59 face towels, 61 pillow slips, 39 wash cloths and 1 quilted pad. In addition, $39.50 was given in cash with which necessary linens will be bought.

Changes have been made in the officer personnel of the auxiliary because of the fact that some of the officers have left the city with their husbands, who are in the armed forces. Officers now are president Mrs. H. M. Snead, president-elect Mrs. J. E. Hamner, vice president Mrs. C. S. Dodd, treasurer Mrs. Meade Edmunds, recording secretary Mrs. W. B. McIlwaine and corresponding secretary Mrs. C. T. Jones.

Wisconsin

Two hundred members and guests attended the meeting of the Woman's Auxiliary to the Medical Society of Milwaukee County on Lincoln's Birthday. Among the guests were members of the Washington-Ozaukee and Waukesha county medical auxiliaries and members of the Milwaukee dental auxiliary. The guest speaker was Commander Bart W. Hogan, Senior Medical Officer aboard the aircraft carrier *Wasp*. Members of the auxiliary who are nurses have been asked to fill out questionnaires which will be used in a survey of nursing resources in Wisconsin. Mrs. Edith M. Partridge, Cudahy, executive secretary of the Wisconsin State Nurses' Association, has charge of this survey.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education and public health.)

ARKANSAS

New Director of Crippled Children.—Dr. Vida H. Gordon, director of the Sanilac County (Mich.) Health Department since June 1941, has been appointed director of crippled children activities in Arkansas with headquarters in Little Rock. Dr. Gordon was recently elected president of the Sanilac County Medical Society.

CALIFORNIA

Personal.—Dr. Harold Shyrock, assistant professor of anatomy (microscopic), will be acting dean of the College of Medical Evangelists, Loma Linda-Los Angeles, until the recently appointed dean, Dr. Newton G. Evans, is able to move to Loma Linda and to accept full administrative activities.

California's Health.—With the July 15 issue the *Weekly Bulletin* of the state department of public health became *California's Health*, which hereafter will be issued every other week instead of every week. The *Weekly Bulletin* has been published since Feb. 18, 1922. Prior to that date the departmental publication was a monthly bulletin, which was first published in June 1905.

DISTRICT OF COLUMBIA

Department of State Visitors.—The following have recently arrived in Washington as the guests of the Department of State: Madame Jacqueline Wiener-Silvera, leader in child welfare from Haiti and founder and president of the League for the Protection of Children there; Dr. Xavier da Silveira, head of the Surgical Clinic in the Polyclinic at Rio de Janeiro, who arrived for a tour of the United States under a similar invitation; Dr. Lauro Cruz Goyenola, Uruguayan specialist in rural medicine, who will make a special study for his government on popular health education and is a former president of the Medical Society of Eastern Uruguay and at present an officer in the clinical surgical service of the national hospital system of Uruguay, and Dr. Heitor P. Froes, chairman of tropical diseases on the federal faculty of medicine at Bahia.

Personal.—John B. Parker, Ph.D., since 1910 a member of the faculty of the Catholic University of America, Washington, has been made professor emeritus of biology.——Charles L. Newcomb has been named acting executive secretary of the Tuberculosis Association of the District of Columbia, succeeding Harald H. Lund.——Brig. Gen. Fred W. Rankin, Army Medical Corps, received the honorary degree of doctor of science at the commencement exercises of Northwestern University, Chicago, on June 16.——Dr. Joseph T. Roberts, formerly assistant professor of internal medicine and anatomy and director of the experimental laboratory department, University of Texas School of Medicine, Galveston, has been appointed adjunct clinical professor of medicine on the faculties of the schools of medicine of Georgetown University and George Washington University, Washington; he is also chief medical officer at Gallinger Municipal Hospital.

ILLINOIS

Personal.—Dr. Amzi P. Kannapel has been appointed editor of the *Peoria Medical News* to succeed Dr. Emil Z. Levitin, who held the office for almost fifteen years.

Chicago

Luncheon in Honor of Dr. Lebedenko.—The Russian War Relief, Inc., announces a luncheon in honor of Dr. V. V. Lebedenko, professor of surgery, First Moscow Medical Institute, and representative of the Russian Red Cross and Red Crescent, at the Palmer House on August 17. Dr. Lebedenko will give an address on "Soviet War Medicine."

Bevan Bequest to Surgical Fund.—The will of the late Dr. Arthur D. Bevan provides for a bequest of $5,000 to the Trustees of Rush Medical College. The amount is to be added to the Thomson-Bevan Surgical Fellowship Fund, established in 1914 by gifts of Mr. A. D. Thomson and Dr. Bevan. The annual income from the fund provides a fellowship for a resident surgeon or head surgeon at Presbyterian Hospital. On the death of the primary beneficiaries of the will, $25,000 will go to the Lake Forest Hospital, Lake Forest, Ill., as a surgical endowment and the residue will go to the Presbyterian Hospital to establish a perpetual endowment.

Society Urges Complete Filtration for Lake Water.—At a special meeting of the Council of the Chicago Medical Society on July 20 approval was given to a report recommending that complete filtration of Lake Michigan should be carried out. The report, submitted by an advisory committee headed by Dr. Robert A. Black, stated that "the pollution of the water at the south end of Lake Michigan at the intakes of the 68th Street and Dunne cribs is a potential danger to the health of 1,400,000 citizens on the south side of Chicago. Chlorination alone will not make it safe during periods of high pollution. The only adequate protection of Chicago water is filtration followed by chlorination." In a Washington conference Abel Wolman, D.E., chief consultant for the water division of WPB, stated that in his opinion the amount of impurities in Chicago water at present does not require any immediate action. Dr. Herman N. Bundesen, president of the Chicago Board of Health, said that the increase in bacteria count in the first eight days of July was alarming. Dr. Bundesen submitted figures showing that the impurities during this period were nearly three times as great as in June, it was reported.

MARYLAND

Personal.—Dr. Theodore R. Shrop, Cumberland, has been appointed a deputy state and county health officer of Garrett County, succeeding Dr. Henry Rolfe DePuy, Oakland, who resigned on Sept. 1, 1941.——Dr. Henry N. Harkins, a member of the staff of Henry Ford Hospital, Detroit, on July 1 became associate professor of surgery at Johns Hopkins University School of Medicine, Baltimore.

Yellow Fever Volunteer Dies.—Clyde L. West, a trial magistrate in Calvert County and one of the group of volunteers who was infected by mosquitoes in the experimental inoculation conducted in Cuba during the Spanish American War by Major Walter Reed, M. C., U. S. Army, died on July 16 of heart disease, aged 66. According to an Associated Press dispatch from North Beach, Mr. West was taken sick with yellow fever on Feb. 3, 1901 and discharged from the service on July 10, 1902 at Fort Meyer, Va. He had been inoculated at Camp Lazear, Cuba.

MISSOURI

Annual Fall Clinical Conference.—The Kansas City Southwest Clinical Society will hold its annual fall clinical conference, October 4-6. The conference will be made up of round table discussions, lectures, demonstrations and refresher courses in medicine and surgery and the specialties. The preliminary program includes the following speakers: Drs. Frank H. Lahey, Boston; Harrison F. Flippin, Philadelphia; William F. Mengert, Iowa City; Edward H. Ryncarson, Rochester, Minn.; Tom D. Spies, Birmingham, Ala.; Cyrus C. Sturgis, Ann Arbor, Mich., and Paul D. White, Boston.

Health Forum.—The Jackson County Health Forum, sponsored by the auxiliaries of the accredited hospitals of Jackson County, will begin its 1943-1944 season on September 15 with a talk by Dr. French K. Hansel, St. Louis, on "Hay Fever and Asthma." Others in the series, which is open to the public, will be:

Dr. Fred M. Smith, Iowa City, Some of the Things That a Layman Should Know About His Heart, October 20.
Lon W. Morrey, D.D.S., Chicago, Your Teeth and Their Importance to General Health, November 17.
Dr. William W. Bauer, director of the Bureau of Health Education, American Medical Association, Chicago, Eat What You Want, January 19.
Dr. Walter Freeman, Washington, D. C., War—Is Good for the Nerves: But! February 16.
Dr. Ralph Pemberton, Philadelphia, Rheumatism, Arthritis and Related Diseases, March 16.
Dr. Morris Fishbein, Editor of The Journal, New Knowledge of Cancer, April 19.

NEW JERSEY

Personal.—Rutgers University, New Brunswick, recently conferred the honorary degree of doctor of science on Dr. Wells P. Eagleton, Newark, for his many attainments during the fifty years of his practice as a physician.——William O. Frohring, recently elected director of the American Home Products Corporation, Jersey City, has been appointed special technical consultant to the corporation and its subsidiaries. He will concentrate on research and development work in connection with new products to be introduced when the war ends. Mr. Frohring resigned as president and general manager of S. M. A. Corporation, a subsidiary of American Home Products, to

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accept the new position.——Dr. Stephen A. Douglass, Paterson, has been elected president of the New Jersey Tuberculosis League, Newark, succeeding Dr. Elvira D. Abell, Morristown.

NEW MEXICO

State Medical Election.—Dr. Carl H. Gellenthien, Valmora, was chosen president-elect of the New Mexico Medical Society at its recent meeting and Dr. Joseph E. J. Harris, Albuquerque, was installed as president. Dr. Leo B. Cohenour, Albuquerque, is the secretary-treasurer. The next session will be in Albuquerque sometime in May.

NEW YORK

Examination for Assistant District Health Officer.—The state department of civil service will conduct an examination for assistant district health officer of the New York State Department of Health on September 1. The salary range of the position is $4,000 to $5,000. Applications and fees must be submitted to the department of civil service by August 24. Accepted candidates will be notified when and where to appear for examination. If an applicant is rejected, notice will be sent and the fee will be refunded after the examination has been held. Candidates must be United States citizens who have been legal residents of New York State for not less than one year. Additional information may be obtained from the department of civil service at Albany.

Dr. Parnall Placed in Charge of Hospital Survey.—Dr. Christopher G. Parnall, medical director of the Rochester General Hospital, Rochester, has been granted a six months leave of absence to serve as director of a survey of the twenty-six state operated mental hospitals. The survey is a part of the investigation recently inaugurated under the Moreland Act (THE JOURNAL, June 12, p. 456) and will be divided into six main fields of study: studies and inquiries into admission and discharge procedures, personnel, professional care of patients, physical plans in the hospital structures, collection of funds for patient care and the administrative setup of the department. Archie O. Dawson, lawyer, chairman of the five members comprising the Moreland act commissioners, states in an announcement to the press that Dr. Parnall will be assisted by a staff of experts in the field of hospital administration, nursing care, social service, dietetics, psychiatric work and the medical care of patients.

New York City

Chinese Blood Bank.—The Chinese Blood Bank, opened at 154 Nassau Street in June, is the first blood bank in the world entirely manned by Chinese doctors, nurses and technicians to prepare plasma for the armies of China. Dr. J. Heng Liu, medical adviser to the Chinese division of the Lend Lease Administration, was the first donor. Eighty-three donations were received during the first week of operation, nearly all of which were from Chinese. The staff is headed by Dr. Chien-lung Yi, who has studied the technic of plasma drying with Dr. John Scudder at Presbyterian Hospital and Sloane Hospital for Women and with Dr. Max Strumia at Bryn Mawr Hospital, Bryn Mawr, Pa. Dr. Arthur Liu is clinical director and Mrs. Jean Chum Liu is the nurse in charge. Louis de Fott oversees the mechanical equipment, which includes a refrigerator to chill blood, a room for pooling plasma, a freezing cabinet and a Strumia dehydration unit with a shell-freezing bath. Because malaria is endemic in China there is also a Seitz filter which, by sterilizing blood plasma, can eliminate malaria micro-organisms. Preparations for the opening of the blood bank had been going on for more than a year under the supervision of Dr. Scudder, director of the blood bank at the Presbyterian Hospital. Special training was provided so that the Chinese personnel will be able to take the machinery back to China after its trial run in New York. There they will set up the blood bank and pass on their knowledge to others, so that more blood banks may be operated as needed by the Chinese army (THE JOURNAL, June 26, p. 630).

OHIO

Reid Memorial Fund.—A public campaign to raise at least $300,000 to be donated to the University of Cincinnati College of Medicine as a fund dedicated to the memory of Dr. Mont R. Reid was launched on July 12 under the auspices of a local committee of sponsors. The fund is to be used to supplement the regular budget of the college of medicine and is intended "to honor the memory of a great citizen, to advance the cause of medical science and teaching and to promote the health of our community." An annual deficit varying from $18,000 to $25,000 was usually met through the personal efforts of Dr. Reid, and it is believed that a fund to insure the activities of the department will be a suitable memorial in his honor.

Physician Honored by Academy of Medicine.—At a recent meeting of the Academy of Medicine of Cleveland, Dr. Howard Dittrick, for many years a member or chairman of the publications committee, was presented with the academy's distinguished service award for 1943. The award consisted of a silver plate and went to Dr. Dittrick in recognition of his service to the academy over a long period of time. He has been on the membership committee, chairman of the clinical pathologic section and program committee, and director and chairman of the publication committee and editor of the *Bulletin of the Academy of Medicine of Cleveland* almost uninterruptedly since 1934. He has been a trustee of the Cleveland Medical library since 1927, serving for a time as director of membership and director of programs. In 1928 he became curator and in 1935 director of the Museum of Historical and Cultural Medicine.

PENNSYLVANIA

Position Available as Venereal Control Officer—The Merit System of the state department of health announces an examination to fill the position of chief of the venereal disease division. Applications, which must be received from the Merit System Office, 207 Blackstone Building, Harrisburg, must be postmarked before August 20. Requirements include graduation from an approved school, licensure or eligibility for licensure in Pennsylvania, one year's graduate training and experience in venereal disease work, and completion of a year's acceptable course in public health prior to appointment or within three years after assuming office. The examination will consist of a rating of training and experience and of an oral examination.

TEXAS

Members of State Medical Board.—Dr. Marion M. Brown, Mexia, was recently elected president of the Texas State Board of Medical Examiners, Dr. Everett W. Wilson, San Antonio, vice president and Dr. Thomas J. Crowe, Dallas, reelected secretary-treasurer. Miss Marion Wood, Dallas, is the executive secretary. Other new members of the board are Drs. William E. Watt, Austin; Seeley T. Pulliam, Houston, and Gilliam M. Stephenson, Cisco.

Baylor Opens in New Quarters in Houston.—Baylor University College of Medicine now occupies quarters in Houston, the equipment from Dallas having been installed in a large building formerly used as a Sears Roebuck retail store. Houston physicians are cooperating in the teaching facilities, and clinical accommodations are available through the Jefferson Davis Hospital, a city-county unit of 500 beds, and the Hermann Hospital of 240 beds. The new school has eighty-four students in its freshman class. The upper classes are smaller. Baylor has Army and Navy contracts, and all of the Navy students who were in Dallas have been ordered to the Houston school. Recent appointments to the Baylor faculty include that of Dr. James A. Greene, associate professor of theory and practice of medicine, State University of Iowa College of Medicine, Iowa City, who has been named professor and chairman of the department of medicine and dean of the clinical faculties. Baylor University College of Medicine was first organized in Dallas in 1900 as the University of Dallas Medical Department. In 1903, assuming its present title, the school became the medical department of Baylor University at Waco. In 1904 it acquired the charter of the Dallas Medical College and in 1918 absorbed the Fort Worth School of Medicine. Dr. Walter H. Moursund Sr. is dean of Baylor.

WISCONSIN

Lectures on Medicomoral Problems.—Dr. Ervin T. Huber, St. Louis University School of Medicine, gave the first in an annual series of lectures on medicomoral problems at Marquette University School of Medicine, Milwaukee, recently. The lecture series, named after the Jesuit medical missionary René Goupil, is intended to provide physicians with an insight into moral and religious problems in practice.

Twenty-Five Years of Service.—Gold keys and certificates for twenty-five or more years of service were recently presented to the faculty of Marquette University School of Medicine, Milwaukee. Dr. Eben J. Carey, dean of the medical school, was toastmaster. Four of those honored had served the medical school since its organization in 1912. They are Henry L. Banzhaf, D.D.S., and Drs. Matthew N. Federspiel, Chester A. Kissinger and Simpson M. Markson. Other faculty members honored included Drs. Edward F. Barta, Charles J. Coffey, Charles Fidler, Harry J. Heeb, Samuel G. Higgins, Joseph Lettenberger, Francis B. McMahon, Herbert W. Powers, Louis F. Ruschhaupt, James C. Sargent, Frederick A. Stratton and Joseph C. Bock, Ph.D. In addition to faculty members several staff members of the school were also honored.

GENERAL

Obstetricians Postpone Meeting.—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons has voted to postpone the annual meeting, which was to have been held at The Homestead, Hot Springs, Va., September 9-11.

More Fellowships in Health Education.—Fellowships in health education for training at Yale University, the University of Michigan and the University of North Carolina have been announced by the United States Public Health Service. These fellowships have been made possible by the W. K. Kellogg Foundation, Battle Creek, Mich., through a grant to the United States Public Health Service. Twenty-six young women are now enrolled in the School of Public Health at the University of North Carolina working for their master's degree in public health. The additional fellowships will be awarded for the fall term beginning this September. Basic requirements for application include a B.A. or B.S. degree from an accredited university with major emphasis in the medical and social sciences and education. The successful completion of a year's work leads to a master's degree in public health. Interested and qualified persons must submit their applications to the Surgeon General of the U. S. Public Health Service not later than September 4. Announcement of the successful candidates will be made on September 7.

U. S. Pharmacopeia Sales Increase.—A report on the financial status of the U. S. Pharmacopeial Convention for the year ended April 30 indicates that the increase in income over the expense of the year is primarily found in the sale of pharmacopeias, represented principally by the U. S. Pharmacopeia XII sales. It is interesting to note that volume sales of U. S. P. XII almost parallel those of U. S. P. XI, U. S. P. XII sales leading, however, at all periods to date. It is obvious that the increased income during this initial period represents a reserve for the maintenance of the revision program for the coming years, a program which will finally bring forth another edition of the Pharmacopeia, new, up to date and in keeping with the times. The increased publication and sales expenses naturally represent, for the most part, costs of printing and binding for the U. S. P. XII to date. A portion of the initial printing is yet to be bound. Administration, convention, revision and research costs have all shown a decided decrease for the year in practically every phase of expense. The report states that the total income was $201,065.79 and the expenses $62,014.87, leaving an excess of income over expense of $139,050.92.

Leslie Dana Medal Awarded to Dr. Lancaster.—Dr. Walter B. Lancaster, now in private practice in Boston, has been awarded the Leslie Dana Gold Medal, awarded annually for outstanding achievements in the prevention of blindness and the conservation of vision. Dr. Lancaster was chosen for the honor by the St. Louis Society for the Blind, through which the medal is offered by Mr. Leslie Dana of St. Louis. The award is given on the recommendation of the Association for Research in Ophthalmology. To commemorate his eightieth birthday, which he recently observed, the *American Journal of Ophthalmology* for May was designated the Lancaster Testimonial Issue. He was chairman of the Section on Ophthalmology of the American Medical Association in 1928. He was president three times of the New England Ophthalmological Society, serving in a similar capacity in 1924 with the American Academy of Ophthalmology and Otolaryngology and in 1935 with the American Ophthalmological Society. Recently he concluded two years as chief of staff of the Dartmouth Eye Institute and ophthalmic surgeon of the Mary Hitchcock Memorial Hospital, Hanover, N. H. (THE JOURNAL, June 5, p. 387).

Automobile Deaths Decrease.—Deaths resulting from motor vehicle accidents throughout the country in the first six months of 1943 totaled 10,030, a reduction of 41 per cent from the total of the comparative period in 1941 before the outbreak of the war and 32 per cent in 1942, according to the National Safety Council. Public cooperation is held largely responsible for the decrease, even though most of it may be attributed to wartime restrictions on speed and mileage. All but one of the thirty-eight states whose motor vehicle death figures were available for the first six months of 1943 showed drops from 1942 levels. Every one showed a reduction from 1941. The 1941-1943 changes for the first half of both years ranged from a 77 per cent drop in Wyoming to almost no change. South Carolina's 67 per cent reduction from 1941 was the second largest drop, and Indiana and Georgia were next with 56 per cent reductions. North Atlantic and South Atlantic regions have not shown the drops in fatalities anticipated because of the drastic curtailment of motor vehicle travel in those areas. Other regions have shown larger decreases in fatalities. A total of 337 cities of 10,000 or more population, whose motor vehicle traffic death figures for the first half of the year were available, showed an average fatality reduction of 19 per cent as compared with the first half of 1942. According to the safety council, this is substantially under the nationwide drop of 32 per cent, so the largest traffic fatality reduction evidently is continuing to come from rural areas.

Government Services

Dr. Vonderlehr Named Director in Puerto Rico and Virgin Islands

Dr. Raymond A. Vonderlehr has been appointed director of district number 6 of the U. S. Public Health Service covering Puerto Rico and the Virgin Islands. Dr. Vonderlehr recently completed eight years' duty as assistant surgeon general in charge of the division of venereal diseases. He has been identified since 1925 with the U. S. Public Health Service. He was first assigned to the U. S. Marine Hospital at Boston in charge of the venereal disease wards. The following year he was stationed at Ellis Island, New York. From 1927 to 1930 Dr. Vonderlehr was assigned to foreign duty in the Irish Free State, England, Germany and Belgium. During this period he furthered his specialty by postgraduate study at syphilis clinics in Germany, England, Scotland and Wales. In 1931, shortly after his return to the United States, he was assigned to the division of venereal diseases and continued in that work to the present time.

New Head of Bureau of Animal Industry

Arthur W. Miller, D.V.S., since 1927 assistant chief of the Bureau of Animal Industry, U. S. Department of Agriculture, Washington, has been appointed in charge of the bureau to succeed John R. Mohler, D.V.M., who retired on July 31 after holding the position for twenty-six years. Dr. Mohler, who received his degree of doctor of veterinary medicine from the University of Pennsylvania in 1896, has been associated with the Bureau of Animal Industry in various capacities since 1897. He has been awarded many honorary degrees and is a member of numerous scientific societies, serving as president of the American Veterinary Medical Association in 1913, U. S. Livestock Sanitary Association in 1925 and of the International Veterinary Congress in 1934. In 1940 he was awarded the twelfth International Veterinary Congress prize and in 1941 was the Kober lecturer. Dr. Miller, who received his degree at the Kansas City Veterinary College in 1901, has been connected with the Bureau of Animal Industry since 1907.

Guard-Attendants and Medical Technical Assistants Needed

The U. S. Civil Service Commission has announced an examination to secure medical guard-attendants and medical technical assistants for the U. S. Public Health Service. Applicants for medical guard-attendant positions, which pay $1,970 (counting overtime compensation) a year, must be registered graduate nurses or have had at least three years' service in the medical corps of the Army or Navy or have had eighteen months' service as hospital attendant-guards in any one of the Department of Justice penal or correctional institutions, in the Medical Center for Federal Prisoners, Springfield, Mo., or in the U. S. Public Health Service Hospital at Lexington, Ky., or at Fort Worth, Texas. It is desirable that applicants should have had satisfactory experience as guards in penal or correctional institutions, as soldiers, sailors or marines, or as hospital or asylum attendants. Applicants for the technical assistant positions, which pay $2,433 a year (counting overtime compensation), must possess the qualifications for medical guard-attendant and in addition must have had one year of training or experience in one of the following options: clinical laboratory technic, pharmacy or x-ray laboratory technic. Applicants must have reached their twenty-first birthday. There is no maximum age limit. No written test is required. Persons now using their highest skills in war work should not apply. Appointments in federal positions are made in accordance with War Manpower Commission policies and employment stabilization plans. Persons who received eligible ratings under the examination announced for these positions in July 1941 need not apply again. Further information and application forms may be obtained at first or second class post offices, civil service regional offices and the commission in Washington, D. C.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

June 30, 1943.

Struggle Over Government Scheme for State Medical Service.

It has been indicated in previous letters to THE JOURNAL that the main subject of contention between the medical profession and the government in the Beveridge scheme will be control by lay bodies. A controversy on the point is now being waged in the *Times*. In a joint letter a number of public men point out that local authorities are the backbone not only of our democratic machine but also of our health services. They are responsible for maternity and child welfare, midwifery, the school medical and the tuberculosis services and the provision on an extending scale of clinics for various specialized services. They play a major part in providing general and special hospitals and almost entirely provide the mental hospitals. It is therefore argued that it would be disastrous if they had no function in the forthcoming development of the nation's health services and, as a result, many of their other functions were crippled.

To this Dr. G. C. Anderson, secretary of the British Medical Association, replied that the main issue has been avoided. It is whether existing local health authorities are satisfactory bodies for administering a comprehensive, including a personal, health service. Does the layman want the doctor-patient relation to be invaded by the state and the doctor to serve the state rather than the patient? Does he desire that a free profession should be converted into a salaried branch of local government? Doctors are convinced that local government is ill equipped to bear the responsibility of a vast and comprehensive personal health service. Local government areas do not coincide with natural hospital areas, and the mere grouping of local authorities will not put this right. There should be a comprehensive health administration locally as well as centrally. The existing proposals only add yet another local authority to the present jigsaw administration.

The caliber of local government membership varies greatly in different areas. Those elected by the people, all too often on a political ticket, are not necessarily equipped to administer a service which includes personal health. Doctors agree with the contention that the users of a public service should have free access to those responsible for its general management. But they say that it is in the public interest that they and the voluntary hospitals should be adequately represented on local representative bodies as well as constituting an advisory machinery.

Fall in the Death Rate Due to Use of Sulfonamides

The improvement in our vital statistics during the war has been previously described in THE JOURNAL. In the *Lancet*, May 29, page 672, Dr. Percy Stocks, medical statistician in the General Register Office, states that the vital statistics of England and Wales in 1942 would have been remarkable even in peacetime. The standardized death rate of civilian females was 6.8 per thousand living, of which 0.08 was due to enemy action and the selective effect of recruitment on the civilian population. The previous lowest rate was 7.43 in 1939. Thus the third year of the war had a rate 9 per cent better than that of any peace year. Civilian males gave a standardized rate of 9.54, which was 0.18 below the previous record of 1939, despite considerable inflation of the rate by selective recruitment.

Comparing 1942 female death rates with those of 1939, there is found a 3 per cent fall in childhood, increasing on passing up the years to 15 per cent in old age. Some important influence tending to reduce mortality, Dr. Stocks thinks, must have operated first on the younger ages and then spread up the scale in the period 1939-1942. Natural or social causes can scarcely have been responsible, but sulfonamide therapy, applied, like most remedies, in the first instance to younger patients while the drugs were in short supply, and later to older people also, as they became more plentiful, provides a possible explanation. Much of the mortality of childhood, and indeed of all ages, arises from the infective complications of diseases which otherwise are not highly fatal.

If this is the true explanation, the diseases treated by sulfonamide compounds ought to account for most of the decline. This has been found. Comparing 1942 with 1938, the deaths from the following diseases diminished in the percentages given: scarlet fever 33, whooping cough 76, measles 30, gonococcic infection 75, erysipelas 41, lobar pneumonia 61, other pneumonia 84, septicemia and pyemia 80, mouth and throat diseases 63, ear and mastoid diseases 72, appendicitis 67, puerperal sepsis 77, diseases of the skin and subcutaneous tissues 72. Taking together all "the sulfonamide groups," the deaths fell from 41,335 in 1938 to 30,482 in 1942. Dr. Stocks concludes that, though alternative explanations might be advanced, the lives saved by sulfonamides in 1942 ran well into five figures, neutralizing the increase in deaths since 1938 due to the rising population of old people and sensibly reducing the standardized death rate.

The Danger of Overspecialization

The triennial Hunterian Oration at the Royal College of Surgeons was delivered by Mr. Victor Bonney, consulting obstetric and gynecologic surgeon to the Middlesex Hospital. Mr. Bonney took for his subject "The Forces Behind Specialism in Surgery." He traced the beginning of specialism to the time when primitive man must have found that better clubs and clothes would be produced if one man made the one and another man the other. Passing from the general to surgery in particular, there later arose the medicine man, who combined the roles of doctor, priest and wizard. The separation of surgery from medicine became distinct in England in 1308, when the Company of Barber Surgeons is first mentioned. Not till 1744 was this association dissolved and the surgeons became a separate company. Now surgery had twelve separate departments, in which he included obstetrics and gynecology.

The need for and the advantages of this subdivision were manifest, but, a master of one specialty himself, he gave a warning against overspecialization, which produced a narrow outlook. To guard against this every aspirant to surgical specialism should undergo adequate training in surgery in general. Since all parts of our art overlap, nothing would be so harmful as its division into a number of watertight compartments. Every one working in a special department should have rooted in his mind that his prime allegiance is owed to surgery as a whole and not to the subsidiary shrine where his immediate service lies. He should be competent to deal with every condition with which he may be confronted. Thus the gynecologic surgeon should be familiar with the surgery of the bladder, the rectum and the abdominal contents generally and should perform such operations as the occasion demands. If he cannot, occasions will certainly arise when his limitation will be harmful and even disastrous to the patient.

The Threatened Decrease of Population

The threatened decrease in our population due to the fall of the birth rate is causing much concern. In the House of Lords Earl de la Warr said that in 1939 100 women of child bearing age were producing only 75 girls to take their place. This figure compared with 155 in 1880 and 115 in 1911.

Assuming no further decline on the present figure, our population would fall to 34 million in 1980. The gravity of the position was masked by a decrease in the mortality of the aged, which meant nothing as regards reproduction. Not only would we be fewer in 1980 but the age composition of our population would be different. Nearly a fourth of us would be old age pensioners, those over 60 having risen from 7.5 per cent in 1880 to 11.5 in 1930 and 22.5 in 1980, with a corresponding smaller proportion of young people to support the old. A steady decrease of population with an ever growing proportion of old to young was the way to extinction as a nation.

In the debate which followed it was stated that the cause of the fall in the birth rate was mainly economic and that the profound effects of the practice of contraception were not realized. Lord Dawson (consulting physician to the London Hospital) said that the churches had made a fundamental mistake in condemning contraception as such. They should have said that contraception should be rightly used and that adequate parentage was a duty of young people. Family allowances were sound and would be a great help. There should also be better housing. With these and suitable propaganda the idea of larger families could be engendered. For the government the duke of Devonshire said that the whole question bristled with difficulties. He was one of those who viewed the position with alarm. The birth rate of 35.1 per thousand in 1865 had fallen to 15.3 in 1935. Our population doubled in the nineteenth century. The decline of population was now threatened in nearly all northwestern Europe except Russia. The governments of Italy and Germany made considerable efforts to stimulate the birth rate. In Italy these had comparatively little effect, but in Germany there was substantial, though not enormous, success. By all kinds of devices they had raised the birth rate to about half what it was fifty years ago. With the object of meeting a real need, the minister of health proposed to publish a document in which the statistical outlook would be set out and discussed in a balanced manner.

Anglo-Soviet Medical Cooperation

Prof. S. A. Sarkisov, representing the executive committee of the Soviet Red Cross and Red Crescent societies, has arrived here to establish contact with the British Red Cross and British medical scientists and to develop mutual exchange of experience in the treatment of sick and wounded soldiers and in assistance to the civil population who have suffered as a result of the war.

BRAZIL

(From Our Regular Correspondent)

June 30, 1943.

Brazilian Physicians Offer an Airplane to the Army

In March 1942 the medical associations of the city of Rio de Janeiro decided to open among their members the subscription for the sum necessary to buy a military airplane to be offered to the Brazilian army. These associations are the National Academy of Medicine, the Society of Medicine and Surgery of Rio de Janeiro, the Brazilian College of Surgeons, the Brazilian Medical Syndicate, the Society of Neurology, Psychiatry and Legal Medicine, the Society of Dermatology, the Society of Pediatrics, the Society of Biology, the Society of Obstetrics and Gynecology, the Society of Ophthalmology, the Society of Gastroenterology and Nutrition, the Society of Tuberculosis, the Society of Traumatology and Orthopedics, the Society of Mental Hygiene, the Society of Traumatology and the St. Lucas Medical Society. The acting committee included Drs. C. de Sant Ana, Aenor E. Lins and Oscar Alves. The total sum has almost been raised and the committee has decided that the airplane shall be fitted to serve as a medical transport and will be named after a great army physician of the past, Dr. Severiano de Rezende.

New University School of Nursing

The first school of nursing of high standard in Brazil, the Ana Nery School of Nursing, founded in the Rio de Janeiro Health Department by a group of American registered nurses in 1923, was transferred to the University of Rio de Janeiro in 1937. A few months ago the arrival of Miss Mary E. Tennant, staff member of the International Health Board of the Rockefeller Foundation in São Paulo, was reported (THE JOURNAL, May 2, 1942, p. 96) to study local conditions in order to start a school of nursing at the university in cooperation with the foundation. This plan will be put into effect immediately except that it will not be the foundation that will cooperate with the São Paulo University but the Special Service of Public Health, the institution organized by the coordinator of Inter-American affairs to cooperate financially and technically with the Brazilian government in the tremendous work of sanitation of the Amazon basin (rubber), of the Rio Doce valley (iron deposits) and several other tasks. On the university grounds a new building will be erected to accommodate the school and the nurses' residence. The Special Service of Public Health will finance the construction of the building, and the state of São Paulo will equip the school and the residence. The building will cost $300,000, and the equipment $100,000. Everything in the new school will be the best and the newest American brand.

Brazilian-American Committee of Pediatrics

A meeting of Brazilian specialists in pediatrics was held recently in Rio de Janeiro to choose the Brazilian physicians who will represent this country in a Brazilian-American Committee of Pediatrics to be established in the near future. Dr. J. Martinho da Rocha, professor of pediatrics at the University of Rio de Janeiro, Dr. Mario Olyntho, professor of child hygiene of the course of public health of the Oswaldo Cruz Institute, and Drs. Adamastor Barbosa, Leonel Gonzaga and Cesar Pernetta were chosen for the committee. All these specialists have served in succession as presidents of the Brazilian Society of Pediatrics during recent years.

Dr. Bernardo A. Houssay

Dr. Bernardo A. Houssay, professor of physiology of the University of Buenos Aires, Argentina, arrived at Rio de Janeiro, June 28, on invitation of the University of Rio de Janeiro, of the Committee of Intellectual Cooperation, of the Brazilian Academy of Science and of the Biologic Society of Brazil to deliver several lectures in his specialty. On June 29 Dr. Houssay was received by the faculty of the Medical School of the University of Rio de Janeiro. Dr. Aloysio de Castro, professor emeritus of medicine, presided at the meeting and welcomed Dr. Houssay. Immediately afterward Dr. Houssay delivered his lecture on the subject of "The Scientific Investigation." On July 6 and 8, at the Brazilian Academy of Sciences and at the National Academy of Medicine, Dr. Houssay lectured respectively on "Thyroid and Diabetes" and on "Regulation of the Internal Secretion of the Pancreas."

Course in Hospital Administration

Dr. Felix Lamela, executive secretary of the Inter-American Hospital Association, founded in September 1941 at the meeting of the American Hospital Association, is now in Rio de Janeiro, where he is organizing, in collaboration with Brazilian specialists, the first course in hospital organization and administration, to be given in 1944, in this city. Dr. Lamela is a member of the board of directors of the School of Tropical Medicine of Puerto Rico.

Deaths

Orville Harry Brown, Arcadia, Calif.; St. Louis University School of Medicine, 1905; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians, Royal Society of Medicine, London, and American Association of Biological Chemists; fellow of the American College of Physicians; assistant in physiology at the University of Kansas, 1901-1902; fellow and assistant in physiology at the University of Chicago from 1902 to 1904; assistant professor of pharmacology at the St. Louis University School of Medicine from 1904 to 1907 and assistant professor of medicine from 1910 to 1916; associate director of the Mount St. Rose Sanatorium, St. Louis, from 1905 to 1907; superintendent of the Missouri State Sanatorium, Mount Vernon, Mo., from 1907 to 1910; member of the visiting staff of the St. Louis City Hospital from 1910 to 1916; at one time state superintendent of public health of Arizona; for many years editor of *Southwestern Medicine;* received the doctor of philosophy degree from the University of Chicago in 1905; author of "Laboratory Physiology" and "Asthma"; aged 67; died, July 26, of carcinoma.

Grover Hewitt Poos ● Palm Springs, Calif.; St. Louis College of Physicians and Surgeons, 1905; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the Southern Medical Association; fellow of the American College of Surgeons; at one time president of the State Bank at Summerfield, Ill., and a member of the school board; served on the examining board of St. Clair County, Ill., during World War I; formerly practiced in St. Louis, where he had been an instructor in clinical ophthalmology at the Washington University School of Medicine and on the staffs of the De Paul Hospital, Barnes Hospital and the Evangelical Deaconess Home and Hospital; aged 58; died, May 29, of uremia.

Arthur Walter Bingham ● East Orange, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; specialist certified by the American Board of Obstetrics and Gynecology; past president of the Essex County Medical Society; fellow of the American College of Surgeons; chairman of the committee on maternal welfare of the Medical Society of New Jersey for many years; consulting obstetrician to the Dover (N. J.) General Hospital, Orange (N. J.) Memorial Hospital and the Presbyterian Hospital, Newark; served as chief consulting obstetrician to the New Jersey Department of Health; in February 1943 was presented with the fourth Dr. Edward J. Ill Award of the Academy of Medicine of Northern New Jersey; aged 70; died, May 18, of carcinoma of the stomach.

John Taylor Watkins, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Heart Association; at one time associate professor of medicine at the Detroit College of Medicine and Surgery; served as attending physician and vice chief of staff at the Grace Hospital and during World War I as head of the heart and lung division of the medical advisory board; formerly consultant in medicine at the Woman's Hospital and consulting physician to the Highland Park (Mich.) Hospital; aged 59; died, May 8, of cerebral hemorrhage.

Walter Allan Minsch ● Kerrville, Texas; Louisiana State University Medical Center, New Orleans, 1934; past president and secretary-treasurer of the Limestone County (Ala.) Medical Society; formerly health officer of Limestone County; member of the American Public Health Association and the National Tuberculosis Association; served on the board of directors of the Kerr County Tuberculosis Association; on the staff of the Kerrville General Hospital; on the courtesy staff of the Shannon West Texas Memorial Hospital, San Angelo; aged 43; died, May 22, of pulmonary tuberculosis and diabetes mellitus.

Henry Burner Anderson ● Newark, Ohio; Ohio Medical University, Columbus, 1902; for many years surgeon for the Baltimore and Ohio Railroad; aged 65; died, May 24.

Raymond West Andrae, Plainfield, Wis.; Milwaukee Medical College, 1907; member of the State Medical Society of Wisconsin; aged 61; died, June 2, in the State of Wisconsin General Hospital, Madison, of pneumonia.

Claude Wilber Ashley ● Bloomsburg, Pa.; Jefferson Medical College of Philadelphia, 1932; diplomate of the National Board of Medical Examiners; specialist certified by the American Board of Pediatrics, Inc.; fellow of the American College of Physicians; pediatrician to the Bloomsburg Hospital; aged 38; died, May 22, of coronary thrombosis.

William Taylor Barry, Santa Barbara, Calif.; Bellevue Hospital Medical College, New York, 1884; past president of the Santa Barbara County Medical Society; formerly president of the city board of education; aged 84; died, May 18, of bronchopneumonia, coronary artery disease and cardiac insufficiency.

Frank Clare Bawden ● Pontiac, Ill.; Rush Medical College, Chicago, 1902; aged 66; on the staff of St. James' Hospital, where he died, May 26, of cerebral hemorrhage.

Alfred Chapman Benedict ● South Orange, N. J.; Columbia University College of Physicians and Surgeons, New York, 1901; health officer of South Orange; past president of the New Jersey Health Officers' Association; examining physician for the draft board recently and during World War I; aged 68; died, May 28, in the Orange (N. J.) Memorial Hospital of acute bacterial endocarditis, Streptococcus viridans and chronic heart disease.

Louis de Milly Blocker ● Cincinnati; University of the City of New York Medical Department, New York, 1889; past president of the Escambia County (Fla.) Medical Society; at one time member of the city board of health of Pensacola, Fla., and past president of the chamber of commerce; medical director of the American Can Company of Cincinnati; aged 76; died, May 28, of tumor of the right kidney.

Ray Allen Bowman ● Elkhart, Ind.; Indiana University School of Medicine, Indianapolis, 1925; coroner of Elkhart County; served during World War I; on the staff of the Elkhart General Hospital; aged 46; died, May 30, of brain tumor.

John Rufus Bruce, Marshfield, Mo.; Tufts College Medical School, Boston, 1907; for many years secretary of the Webster County Medical Society; served during World War I; served as a member of the city board of health and as county health commissioner and coroner; registrar of vital statistics for the townships of Ozark, High Prairie, Grant, Jackson, Washington, Niangua and Union; aged 59; died, May 16.

Julian Cohen Chandler ● Tampa, Fla.; Atlanta College of Physicians and Surgeons, 1910; aged 65; on the courtesy staff of the Municipal Hospital, where he died, May 20, of carcinoma of the splenic flexor colon.

William Bicknell Coats, Brainerd, Minn.; Syracuse University College of Medicine, 1886; aged 79; died, May 15, of burns received in a gasoline stove explosion.

John Barstow Coryell ● St. Louis; St. Louis Medical College, 1885; aged 73; on the staff of the Alexian Brothers Hospital, where he died, May 31, of pneumonia as the result of injuries received when struck by an automobile.

John Vance Cowles, Kansas City, Mo.; Kansas City Homeopathic Medical College, 1898; aged 67; died, June 11, of leukemia.

James Henry Crouch, Norman, Okla.; Medical College of Ohio, Cincinnati, 1879; aged 87; died, May 6, in the Wesley Hospital, Oklahoma City, of hypertensive heart disease.

Joseph De Horatiis ● Detroit; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1905; Detroit College of Medicine, 1909; aged 63; died, June 21, in the Receiving Hospital of shock and hemorrhage following a skull fracture received during a race riot.

Charles Aloysius Dillon, Tulsa, Okla.; University of Pennsylvania Department of Medicine, Philadelphia, 1910; served on the staff of St. John's Hospital; aged 64; died, May 29, of heart disease and hypertrophy of the prostate.

Elliott Isaac Dorn ● Newark, N. J.; Long Island College Hospital, Brooklyn, 1904; member of the American College of Chest Physicians; for many years director of the tuberculosis clinics of the state department of health; on the staff of the Newark Memorial Hospital; aged 65; died, May 26, in the Beth Israel Hospital of cerebral hemorrhage.

George M. Dunaif, Brooklyn; Long Island College Hospital, Brooklyn, 1905; aged 64; died, May 9.

William F. Eimbeck, New Haven, Mo.; Washington University School of Medicine, St. Louis, 1896; member of the Missouri State Medical Association; aged 71; died, April 15, of arteriosclerosis and senile dementia.

Frank Coral Eldred, Sparrows Point, Md.; University of Maryland School of Medicine, Baltimore, 1891; member of the Medical and Chirurgical Faculty of Maryland; aged 75; on the staff of the Church Home and Infirmary, Baltimore, where he died, May 24, of nephritis.

William Crozier Fawcett, Starkweather, N. D.; Western University Faculty of Medicine, London, Ont., Canada, 1901; member and past president of the North Dakota State Board of Medical Examiners and the North Dakota State Medical Association; member of the staff of the Mercy Hospital, Devils Lake; aged 65; died, June 21, of carcinoma of the sigmoid.

Hubert Flurry, Booneville, Miss.; University of Pennsylvania School of Medicine, Philadelphia, 1930; served during World War I; head of the Prentiss County Health Department; formerly acting assistant surgeon in the U. S. Public Health Service and on the staffs of the Veterans Administration facilities in Lake City, Fla., and Aspinwall, Pa.; aged 48; died, May 6, of heart disease.

Elsie Fox ● New York; Cornell University Medical College, New York, 1911; aged 58; died, June 30, of cerebral hemorrhage.

Fred Le Grande Gibbs ● St. Louis; Washington University School of Medicine, 1913; served as a captain in the medical corps of the U. S. Army during World War I; a member of the staffs of the Evangelical Deaconess Home and Hospital, Missouri Baptist Hospital and the De Paul Hospital, where he died, June 4, of myocardial infarction and coronary sclerosis, aged 52.

Larkin White Glazebrook, Washington, D. C.; College of Physicians and Surgeons, New York, 1890; Long Island College Hospital, Brooklyn, 1890; at one time chief surgeon of the Washington Railway and Electric Company; formerly attending physician to the Central Dispensary and Emergency Hospital and physician to the Washington City Orphan Asylum; aged 75; died, June 3, of heart disease.

James Henry Haberlin, Providence, R. I.; Yale University School of Medicine, New Haven, Conn., 1903; formerly on the staffs of the New York Post-Graduate Medical School and Hospital, New York, St. Mary's Hospital, Brooklyn and St. Joseph's Hospital; aged 63; died, May 1, of coronary thrombosis.

Risq Gautus Haddad, Brooklyn; University and Bellevue Hospital Medical College, New York, 1901; served on the staff of the Shore Road Hospital; aged 68; died, May 8, of coronary thrombosis.

Elizabeth K. Miller Halkett, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1895; aged 82; died, May 23, of heart disease.

Leo Frederick Hall, Helena, Mont.; Medical School of Maine, Portland, 1910; member of the Medical Association of Montana; served as health officer of Helena and of Lewis and Clark County; formerly deputy health commissioner and health commissioner of Cuyahoga County, Ohio; at one time health officer of Auburn, Maine; served in the medical corps of the U. S. Army during World War I; formerly on the staff of the Community Hospital, Berea, Ohio; aged 55; died, May 9, of myocarditis, edema and nephritis.

Robert Dudley Harris ● Fulshear, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1893; served during World War I; aged 73; died, May 9, of cerebral arteriosclerosis.

Henry Gehardt Hartman ● Louisville, Ky.; Louisville Medical College, 1907; also a pharmacist; served in the medical corps of the U. S. Army during World War I; aged 61; died, May 6, in St. Anthony's Hospital of injuries received when he was struck by an automobile.

Wesley Romeo Hawkins, Glasgow, Mo.; Louisville (Ky.) Medical College, 1892; member of the Missouri State Medical Association; past president of the Howard County Medical Society; aged 74; died, April 17, of myocarditis.

William Allen Hayes, Louisa, Ky.; University of Louisville (Ky.) Medical Department, 1908; member of the Kentucky State Medical Association; on the staff of the Louisa General Hospital; aged 65; died, May 22, of coronary occlusion.

Ralph Reid Hendershott ● Tiffin, Ohio; Starling Medical College, Columbus, 1898; president of the Ohio State Medical Association 1935-1936; past president of the Seneca County Medical Society; during World War I was commissioned a captain in the medical corps of the U. S. Army; aged 66; died, May 1, of coronary occlusion.

Henry F. Hill, Baltimore; University of Maryland School of Medicine, Baltimore, 1877; aged 88; died, May 12, in the University Hospital of coronary thrombosis.

Joseph Alton Hoegen ● Wyoming, Iowa; New York Homeopathic Medical College and Flower Hospital, New York, 1915; served during World War I; aged 49; died, May 8, of pulmonary embolism due to hypertensive heart disease.

George H. V. Hunter ● Brooklyn; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1908; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served as a captain with the Harvard Unit in the British army in 1916; for many years on the staffs of the Norwegian and Brooklyn hospitals; attending orthopedic surgeon to St. Agnes Hospital, White Plains; aged 63; died, May 21, of carcinoma at his home in Scarsdale, N. Y.

George Oscar Jenkins, Newton, Mass.; Harvard Medical School, Boston, 1874; aged 92; died, May 10, of bronchopneumonia.

Fred Garfield King ● Canton, Ohio; University of Wooster Medical Department, Cleveland, 1908; past president of the Stark County Medical Society; past president of the staff of Aultman Hospital; aged 60; died, May 28.

Francis Ronan Mahony, Lowell, Mass.; Harvard Medical School, Boston, 1901; also a lawyer; member of the Massachusetts Medical Society; for many years a member and since 1936 chairman of the Massachusetts Board of Registration in Medicine; chairman of the board of health of Lowell; fellow of the American College of Surgeons; senior visiting surgeon, St. John's Hospital; aged 64; died, May 17.

Alban Leo Mann, Elgin, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; for twenty-five years health officer of Elgin; aged 83; died, June 1, in St. Joseph's Hospital.

William Moffatt, Utica, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1898; member of the board of directors of the Oneida National Bank and Trust Company; at one time on the staff of St. Luke's Home and Hospital; aged 74; died, May 10, in a New York hospital of carcinoma of the bladder.

Archie Clay Monroe ● Richmond, Va.; University College of Medicine, Richmond, 1907; member of the staff of the Stuart Circle Hospital; aged 59; died, May 21, of hypertension.

Nimrod Woodford Moore, Cynthiana, Ky.; Medical College of Ohio, Cincinnati, 1881; formerly health officer of Harrison County; aged 85; died, May 26, in the Harrison Memorial Hospital of arteriosclerosis.

Julia C. Cotton Mutchler, Dover, N. J.; Woman's Medical College of Baltimore, 1908; member of the Medical Society of New Jersey; at one time on the staff of the Norristown (Pa.) State Hospital and the New Jersey State Hospital, Greystone Park; formerly a member of the state legislature and member of the board of health of Dover; school physician; aged 58; on the staff of the Dover General Hospital, where she died, July 16, of carcinoma of the throat.

Emanuel F. Napieralski, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; served as a member of the city health department; examining physician for the draft board during World War I; aged 65; died, June 25, of chronic myocarditis and interstitial nephritis.

Lewis Knode Neff ● New York; Bellevue Hospital Medical College, New York, 1886; at one time clinical professor of medicine at the University and Bellevue Hospital Medical College; veteran of the Spanish American War and World War I; member of the old Eighth Regiment of the New York National Guard; formerly director of the medical service at Harlem Hospital; aged 81; died in the Pennsylvania Railroad Station, May 6, of heart disease.

Frank Neufeld ● Davenport, Iowa; John A. Creighton Medical College, Omaha, 1901; also a pharmacist; past president of the Scott County Medical Society; served on the staffs of St. Luke's and Mercy hospitals; a director of the Home Savings Bank; aged 68; died, May 1, of coronary occlusion.

George Charles Oldag ● Paullina, Iowa; State University of Iowa College of Medicine, Iowa City, 1907; past president of the O'Brien County Medical Society; aged 64; died, May 14, in Cherokee of myocarditis and coronary occlusion.

Earl Welbourn Owen, Spencer, W. Va.; Vanderbilt University School of Medicine, Nashville, Tenn., 1925; member of the West Virginia State Medical Association; served during World War I; for many years health officer of Spencer; aged 44; died, May 17, in Los Angeles of hypertension.

Norman O. Paulin, Cleveland Heights, Ohio; Western Reserve University Medical Department, Cleveland, 1895; aged 71; died, May 24, in the Cleveland Clinic Foundation Hospital, Cleveland, of coronary thrombosis.

Louis Willard Pease, Chicago; Detroit College of Medicine, 1896; member of the Illinois State Medical Society; veteran of the Spanish-American War; served on the staff of the Veterans Administration Facility, Hines, Ill.; aged 68; died, May 20, of heart disease.

Henry Christian Petersen, Stockton, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the California Medical Association; aged 67; died, May 17, of heart disease.

Benton Sanders Pettus, Athens, Ala.; University of Nashville (Tenn.) Medical Department, 1892; Vanderbilt University School of Medicine, Nashville, 1892; member of the Medical Association of the State of Alabama; aged 74; died, May 19, at Birmingham of heart disease.

Thomas Redmond ● St. Joseph, Mo.; Rush Medical College, Chicago, 1906; an Affiliate Fellow of the American Medical Association; aged 68; died, May 23, of acute coronary occlusion.

Roland H. C. Rhea, Louisville, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1881; University of Nashville (Tenn.) Medical Department, 1882; aged 84; died, May 22, in the Norton Infirmary of coronary sclerosis and arteriosclerosis.

Clarence Bingham Ripley ● Galesburg, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; past president of the Knox County Medical Society; fellow of the American College of Surgeons; served during World War I; chief of staff of the Galesburg Cottage Hospital; member of the staff of St. Mary's Hospital; formerly medical examiner for the Chicago, Burlington and Quincy Railroad; aged 66; died, May 6, of coronary occlusion.

Albert Nelson Robinson ● La Belle, Pa.; Cleveland Homeopathic Medical College, 1904; aged 62; died, May 14, of heart disease.

Monroe Leon Rosenberg ● Dallas, Texas; Baylor University College of Medicine, Dallas, 1932; aged 38; on the staff of St. Paul's Hospital, where he died, May 1, of subacute bacterial endocarditis.

Grant F. Rulifson ● Chicago; Harvey Medical College, Chicago, 1904; served on the staffs of the American and Edgewater hospitals; aged 78; died, May 16, of carcinoma of the tongue.

Wesley Claude Runyon, Belleville, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1907; member of the medical examining board of the county draft board number 1; served on the staffs of the state institutions in Lincoln, Alton, Peoria and Anna; aged 57; died, May 10, of heart disease and cerebral hemorrhage.

William Everett Rushing, Millhaven, Ga.; University of Georgia Medical Department, Augusta, 1900; member of the Medical Association of Georgia; aged 68; died, May 5, in Augusta of heart disease.

Martha Shalter, Dover, Ohio; National Normal University College of Medicine, Lebanon, 1889; at one time superintendent of the Tuscarawas Hospital; aged 86; died, May 17, of arteriosclerosis.

Alexander Spingarn, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1901; since 1941 honorary consulting physician and for many years visiting physician to the Kingston Avenue Hospital; formerly a member of the staff of the Methodist Episcopal Hospital; at one time assistant editor of the *Medical Record*; aged 66; died, May 23, of acute coronary thrombosis.

Henry Steudel ● Ansonia, Conn.; Christian-Albrechts-Universität Medizinische Fakultät, Kiel, Prussia, Germany, 1889; on the courtesy staff of the Griffin Hospital, Derby; aged 76; died, May 29, of edema of the lungs, myocardial failure and carcinoma of the stomach.

Andrew Willis Stevenson, Vancouver, Wash.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; aged 60; on the staff of St. Joseph's Hospital, where he died, May 16, of pneumonia.

Edward R. Stewart, Blair, Neb.; Missouri Medical College, St. Louis, 1887; past president of the Washington County Medical Society; aged 81; died, May 1, of pneumonia.

H. Kathleen O'Connor Sullivan ● Omaha; John A. Creighton Medical College, Omaha, 1903; past president of the Nebraska Association of Medical Women; aged 62; died, May 6, in a hospital at Rochester, Minn., of carcinoma of the stomach.

Freeman Augustus Tower, Brattleboro, Vt.; Tufts College Medical School, Boston, 1904; member of the Vermont State Medical Society, American Psychiatric Association and the New England Society of Psychiatry; assistant superintendent of Brattleboro Retreat; aged 66; died, May 22, of cardiorenal vascular disease.

Union Samuel Ward, New York; Bellevue Hospital Medical College, New York, 1888; aged 80; died, May 1, of heart disease.

Stephen A. Whinery, Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1890; aged 76; formerly on the staff of St. Mary's Hospital, where he died, May 1, of coronary thrombosis.

Charles Fiske Wood, Westfield, N. J.; New York Homeopathic Medical College and Hospital, New York, 1901; at one time a lieutenant in the U. S. Navy; formerly medical inspector for the schools of Westfield and member of the board of health; at one time member of the board of health of Saginaw, Mich.; served on the staffs of the Montclair (N. J.) Community Hospital and the Rahway (N. J.) Hospital; aged 66; died, May 2, of coronary thrombosis.

Herbert Samuel Worthley, Joliet, Ill.; Northwestern University Medical School, Chicago, 1893; member of the Illinois State Medical Society; served on the board of St. Joseph's and Silver Cross hospitals; for thirty-seven years medical examiner for the Metropolitan Life Insurance Company; aged 75; died, May 7, of cerebral hemorrhage.

Edgar Williams Young ● Petersburg, Va.; Baltimore Medical College, 1911; served overseas during World War I and was decorated with the Order of the Purple Heart; aged 55; on the staff of the Petersburg Hospital, where he died, May 22, of pneumonia.

Alfred Angelo Zangrilli, Pittsburgh; Jefferson Medical College of Philadelphia, 1931; member of the Medical Society of the State of Pennsylvania; medical examiner for draft board number 12; school physician; on the staff of the Pittsburgh Hospital; aged 43; died, May 27, of coronary occlusion.

Avrum Herman Zeiler ● Los Angeles; Columbia University College of Physicians and Surgeons, New York, 1905; specialist certified by the American Board of Pathology, Inc.; on the staffs of the California Hospital, Hospital of the Good Samaritan, Queen of Angels Hospital and the Cedars of Lebanon Hospital, where he died, July 16, of carcinoma of the colon, aged 61.

William Walter Zwick, Riverside, N. J.; University of Louisville (Ky.) Medical Department, 1919; served during World War I; at one time a medical missionary in China; in 1924 had been appointed university physician to the University of Kentucky, Lexington; public school physician and examining physician for the local Selective Service Board; aged 54; died, May 23, in Philadelphia of coronary occlusion.

DIED WHILE IN MILITARY SERVICE

Ralph Clarke Bradley ● Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1929; served as an instructor in pharmacology at the Temple University School of Medicine; for nine years flight surgeon for the Pennsylvania National Guard; captain in the medical corps, Army of the United States; aged 44; died, April 28, in the Tilton General Hospital, Fort Dix, N. J., of malignant lymphoma of the stomach with metastasis.

Earl V. Ferguson, Cincinnati; University of Cincinnati College of Medicine, 1930; member of the Ohio State Medical Association; served on the staffs of the Christ, Bethesda and Cincinnati General hospitals; lieutenant commander, medical corps, U. S. Naval Reserve; aged 39; died, June 20, in the U. S. Naval Hospital, Pearl Harbor, T. H., of purpura hemorrhagica.

Manuel Heine Shear ● York, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1932; member of the Medical Society of the State of Pennsylvania; captain in the medical reserve corps of the U. S. Army; aged 35; killed, July 24, 1942, in an airplane accident in the African area.

Lucius Townshend Wing, New York; Harvard Medical School, Boston, 1939; diplomate of the National Board of Medical Examiners; first lieutenant in the medical reserve corps of the U. S. Army; aged 28; died, May 24, in the European area.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Pharmacists: Atropine Negligently Included in Filling Prescription for Tonic.—The defendant drug company on June 25, 1939 filled a prescription for a tonic in capsule form given the plaintiff by Dr. Sibley, which, among other things, called for phenacetin, arsenic acid and strychnine sulfate. The size of the dose called for by the prescription the reported case does not make clear, although the prescription directed the taking of four capsules daily. The plaintiff took two capsules on the 25th. His wife then noticed that the pupils of his eyes were dilated. He took capsules in the morning and at noon on the 26th. While eating his noon meal he choked on a piece of meat because he could not swallow. His vision became impaired and by afternoon he was unable to read numbers on freight cars or to distinguish people. He began to stagger, his throat was dry and he could hardly talk. The plaintiff consulted his physician that afternoon, who after examining him, as also did the physician's son, another physician, ordered him to discontinue taking the capsules and gave him bromides "to settle his nerves." The physician meanwhile had been assured by the drug company that his prescription had been correctly filled. The next day the attending physician called in Dr. Tripp, an eye and ear specialist, and Dr. Krigsten. The four physicians believed that the symptoms all pointed to an acute poisoning from atropine. These physicians, and one other physician also called by the plaintiff as a witness in the suit he instituted against the drug company, stated also that there was no probability that the drugs prescribed by Dr. Sibley would or could cause the plaintiff's condition. The plaintiff subsequently brought suit against the drug company, alleging that it had negligently included in the capsules called for by Dr. Sibley's prescription "atropine, a poisonous and injurious drug not called for in said prescription." From a judgment for the plaintiff the drug company appealed to the Supreme Court of Iowa.

The principal contention of the drug company on appeal was that the evidence adduced before the trial court was insufficient to show that the capsules contained atropine. In addition to the testimony of the five physicians referred to, a pharmacist of the defendant drug company, who had filled the prescription, testified that in the pharmacy of the defendant arsenic, strychnine and atropine were kept together in different bottles in the same compartment. There was testimony that the bottles and tablets of the three last named drugs were similar in size and shape. Also there was testimony by Professor Coss, head of the Morningside College chemistry department, that he had made a chemical analysis of some of the capsules and that one of the tests he performed on the capsules was "Vitali's test," which was positive for atropine or the atropine group, and that in his opinion there was atropine in the capsules. This witness stated also that he performed a biologic test by putting a solution from the capsules in one of his eyes and that the solution dilated the pupil and indicated that the capsules contained atropine or compounds of the atropine group. The defendant called as a witness in its behalf Dean Teeters of the Pharmacy College of Iowa University, who denied much of Professor Coss's testimony. He testified that he performed Vitali's test (which he said was the best for atropine) on the contents of three of the capsules and found no atropine. He testified also that it was impossible "to make a chemical examination that would be absolutely trustworthy" of the combination of prescribed drugs. On cross examination Professor Coss stated that hyoscyamine and hyoscine, with atropine, are related drugs of the atropine group and that he could not be positive from his tests that the capsules contained atropine rather than hyoscyamine or hyoscine; that these three drugs of the atropine group have the same properties and would have the same effect, although they are separate drugs. On the basis of this testimony brought out in the cross examination the drug company claimed that the plaintiff had failed to prove that the capsules contained atropine.

That this argument, said the Supreme Court, is somewhat technical is disclosed by the fact that the chemical formula for hyoscyamine is identical with that for atropine, according to the U. S. Pharmacopeia, of which we take judicial notice. We think that there was sufficient evidence that the capsules contained atropine. The plaintiff's medical witnesses testified that the plaintiff, who had taken four of the capsules, showed the characteristic symptoms of atropine poisoning. The jury could have found that, owing to the appearance and location in the prescription counter of the tablets and bottles containing arsenic and strychnine, which were prescribed, and those containing atropine, the latter may have been included. There was no evidence that the drug company kept on hand any hyoscyamine or hyoscine, the other two drugs of the atropine group to which Professor Coss referred, nor that the capsules in fact contained either drug, but only Professor Coss's admission that either would produce similar results in Vitali's test. Dean Teeters, the expert witness called by the defendant, did not claim that either of the other two drugs of the atropine group was present in the capsules. It was not necessary for the plaintiff to prove conclusively the presence of atropine in the capsules or to exclude to a certainty every other suggested poison. The evidence was such as to make the plaintiff's theory of atropine poisoning reasonably probable—not merely possible—and more probable than any other theory based on such evidence. This is sufficient.

At the trial counsel for the plaintiff asked a medical witness "May there be permanent effects of atropine poisoning even though no organic trouble can be demonstrated?" It was proper, said the court, for the trial court to permit the expert witness to answer even though the answer was "It is possible." While an expert may not express a mere guess or conjecture, he may testify to what might have been the cause of a certain result. An opinion as to what was the possible cause of a given result is not too uncertain.

During the trial the plaintiff propounded a long hypothetic question to Drs. Sibley and Krigsten in which one of the assumed facts was that the "Vitali test as made by Professor Coss was positive for atropine and compounds of the atropine group." The drug company objected to the question because any answer to it would be based in part on the opinion of Professor Coss, an expert witness. It was proper, said the court, for the trial court to permit an answer to this question. While it is true that the opinion of an expert should not be based on the opinion of another expert witness, facts testified to by one expert may properly be included in a hypothetical question propounded to another expert. The quoted portion of the question referred to a fact and not an opinion of an expert witness and therefore was proper.

For the reasons stated the judgment in favor of the plaintiff was affirmed.—*Cody v. Toller Drug Co., 5 N. W. (2d) 824 (Iowa, 1942).*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 9-11. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Congress of Physical Therapy, Chicago, Sept. 8-11. Dr. Richard Kovacs, 2 East 88th St., New York, Secretary.

District of Columbia, Medical Society of the, Washington, Sept. 30-Oct. 2. Mr. Theodre Wiprud, 1718 M St. N.W., Washington, Secretary.

Indiana State Medical Association, Indianapolis, Sept. 28-30. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Michigan State Medical Society, Detroit, Sept. 22-24. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing, Secretary.

Northern Minnesota Medical Association, Duluth, Aug. 28. Dr. R. N. Jones, 8 Sixth Avenue N., St. Cloud, Secretary.

Oregon State Medical Society, Portland, Sept. 4-5. Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 27-28. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 13-15. Mr. Charles H. Crownhart, 110 East Main St., Madison, Secretary.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Fort Wayne, Ind.

10:161-200 (May) 1943

Clinical Roentgenologic Review of Literature for 1942 Pertaining to Digestive Tract. M. Feldman.—p. 161.
*Influence of Vitamin C on Wassermann Fastness in Syphilis. S. L. Ruskin.—p. 170.
Absorption of Vitamin A in Chronic Ulcerative Colitis. R. C. Page and Z. Bercovitz.—p. 174.
Diet in Diabetes Mellitus. W. C. Cutting and G. B. Robson.—p. 177.
Constipation: Clinical and Roentgenologic Evaluation of Use of Bran. M. H. Streicher and Lucille Quirk.—p. 179.
Fluorescein: Aid in Gastroscopy. H. M. Robinson.—p. 181.
Merits of Sigmoidoscopy Preceding Barium Enema: Study of Colon. M. Golob.—p. 182.
Allergy as Factor in Thrombosis. J. A. Turnbull.—p. 184.
Meckel's Diverticulum Containing Calculi: Case Report. F. W. Mulsow.—p. 188.
Normal Appearing Gallbladder: (Report of 32 Operated Cases, with Long Follow-Up). J. R. Verbrycke Jr.—p. 190.

Influence of Vitamin C on Wassermann Fastness.—According to Ruskin, vitamin C apparently enhances the spirocheticidal effect of bismuth and the trypanosomicidal effect of antimony. With all other factors equal, the addition of bismuth cevitamate produced negativity in 7 out of 10 syphilitic patients with positive Wassermann fastness. Vitamin C and glutathione influence the capacity for spirochetes and trypanosomes to take up arsenic, antimony, bismuth and gold. Vitamin C acts as a detoxifier of antimony, arsenic and bismuth in the reduced state and can enhance the spirochetal and trypanosomal action of these metals during the process of oxidation. Bismuth cevitamate may be considered an important addition to the therapy of Wassermann fast syphilis.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

49:433-574 (April) 1943

*Bleeding in Hiatus Hernia. O. D. Sahler and A. O. Hampton.—p. 433.
Bleeding Associated with Extramucosal Tumors of Stomach. O. D. Sahler and A. O. Hampton.—p. 442.
Secondary Lymphosarcoma of Stomach. F. Buschke and S. T. Cantril.—p. 450.
Prenatal Diagnosis of Osteopetrosis. E. L. Jenkinson, W. H. Pfisterer, K. K. Latterier and Mary Martin.—p. 455.
*Ghon's Tubercle: Reevaluation of Concept. R. G. Bloch.—p. 463.
Ten Thousand Chest Examinations with Stereoscopic Photoroentgen Unit. J. Levitin.—p. 469.
Roentgenologic Diagnosis of Dilatations of Spinal Cord Veins: Report of Case. B. S. Epstein and L. M. Davidoff.—p. 476.
Experiences with Roentgen Irradiation Following Operation on Brain Tumors. S. W. Rowe and H. W. Jacox.—p. 480.
Cancer of Uterus: Results of Present Method of Radium Therapy as Influenced by Stage and Grade of Lesion. H. H. Bowing and R. E. Fricke.—p. 487.
Elimination of Irradiation Injuries in Treatment of Cancer of Cervix. C. L. Martin.—p. 494.
Instrument for Inserting Multiple Capsules of Radium within Uterus in Treatment for Corpus Cancer. J. F. Nolan and A. N. Arneson.—p. 504.
Cancer of Cervix: Effect on Rate of Cure of Increased Roentgen Radiation to Parametria. W. P. Healy and G. H. Twombly.—p. 519.
Production and Characteristics of 3,000 Kilovolt Roentgen Rays. J. G. Trump and R. W. Cloud.—p. 531.
Preliminary Clinical Observations on Use of 3 Million Volt Roentgen Rays. R. Dresser.—p. 536.

Bleeding in Hiatus Hernia.—Sahler and Hampton state that a study of hiatus hernia carried on at the Massachusetts General Hospital for a period of ten years brought out two important points. One is that hemorrhage may be a symptom of hernia; the second, that the incidence of hiatus hernia is considerably higher than has been appreciated. The diagnosis of hiatus hernia is dependent on two roentgenologic points: an asymmetrical relationship between the lower end of the esophagus and the herniated fundus of the stomach, and a narrowing of the fundus where it passes through the diaphragm. A soft tissue mass in the lower mediastinum should suggest the possibility of hiatus hernia as well as the usual differential diagnosis of tumor abscess.

Ghon's Tubercle.—According to Bloch the term "Ghon's tubercle" has been universally accepted as signifying the calcified single or multiple remnants of a tuberculous lesion resulting from a primary infection acquired in childhood. This interpretation is made regardless of the age of the patient in whom such a lesion is found; its origin is placed back in the early years of life from the adolescent and senile age period alike. Bloch points out that authors from different continents studying tuberculosis in various races have demonstrated that calcifications are found more frequently in old than in young persons and that there is a steady rise in the frequency of such findings with increasing age. Observations in case finding programs in Chicago demonstrated the greater incidence of calcified foci in higher age groups. The majority of such lesions originating during adult life can be traced to exogenous superinfection of individuals known to have been exposed to infection as adults. Serial roentgenographic evidence of the development of calcifying foci in adults is presented. They cannot be differentiated from childhood (primary) lesions. A reevaluation of the so-called Ghon's tubercle or primary tuberculous calcification is needed. In the light of the present knowledge the only justifiable interpretation to be placed on the finding of a calcified tuberculous lesion by roentgen examination is that it represents the innocuous residual of a tuberculous infection, either primary or reinfection, at some prior time either in childhood or adulthood, without its being possible to determine the time at which the infection occurred. The term "Ghon's tubercle" should be dissociated entirely from the time element and applied to all small calcifying or calcified tuberculous foci regardless of age, or, if it is to be retained as signifying the residuals of a childhood infection, it should be applied only when the calcified residuals are found in a child.

Surgery, St. Louis

13:653-822 (May) 1943

Utilization of Encephalomyopexy in Selected Cases of Post-Traumatic Focal Epilepsy. J. H. Siris.—p. 653.
Cranial Seriograph and Its Utility in Neurologic Radiology for Cerebral Angiography. J. M. Sanchez-Perez.—p. 661.
Suppression of Infection in Recent Wounds by Use of Antiseptics. T. Beath.—p. 667.
*Carbamide Sulfonamide Mixtures in Wound Therapy. H. G. Holder and E. M. MacKay.—p. 677.
*Pathogenicity of Bacteroides Melaninogenicus and Its Importance in Surgical Infections. C. Weiss.—p. 683.
Early Postoperative Walking: I. Influence of Exercise on Wound Healing in Rats. B. Newburger.—p. 692.
Study of Physical Factors Concerned in Inflammation: II. Some Factors Which Influence the Spread of Bacteria in Tissues. C. J. Bellis.—p. 696.
Analysis of Reaction of Human Gallbladder and Sphincter of Oddi to Magnesium Sulfate. E. A. Boyden, G. S. Bergh and J. A. Layne.—p. 723.
Perforations of Gallbladder Occurring in General Surgical Practice in Moderate Sized Community. S. L. Stout and J. S. Hibbard.—p. 734.
Experimental Study of Methods for Closing Duodenal Stump After Gastric Resection. A. Slive, D. Shoch and S. J. Fogelson.—p. 741.
Treatment of Flexion Deformities of Knee. R. S. Reich.—p. 746.
Chronic Empyema Due to Dermoid Tumors of Mediastinum. J. M. Dorsey.—p. 755.

Urea-Sulfonamide Mixtures in Wound Therapy.—Holder and MacKay show that urea (carbamide) acts in a number of ways to enhance the action of the sulfonamides. They mention the removal by urea of gross sulfonamide inhibitors or of the source of such inhibitors in the form of necrotic tissue, pus and tissue exudates. Urea increases the solubility of the sulfonamide drugs. If urea had none of its other known advantages, its value as a diluent for the sulfonamides would almost be sufficient reason for its addition to these drugs. The degree of active cellular defense within the wound is aided by urea. It is probable that the hypertonicity of the solution leads to diapedesis and an increase in the resection within the wound tissues. Urea-sulfonamide mixtures have been most satisfactorily employed for first aid in contaminated traumatic wounds.

Experience indicates that with their use formal surgery may be safely delayed long after twelve hours have elapsed. In the handling of wounds resulting from military action this extended period during which a wound may be kept from becoming infected provides for delay in evacuation of wounded and their transportation to facilities allowing adequate treatment. It permits the adequate treatment of shock during the initial period, thereby rendering the patient the best possible risk for surgical treatment. Wounds in which tissue loss prevents primary closure are treated by daily application of urea-sulfonamide mixtures after suitable surgery, including adequate débridement. This is immediately productive of clean, healthy, rapidly growing granulation tissue which permits early successful skin grafting with attendant reduction of disability from scar tissue contraction as well as improvement in the final cosmetic results. Wound therapy with urea-sulfonamide mixtures is simple and inexpensive.

Pathogenicity of Bacteroides Melaninogenicus.—Weiss maintains that Bacteroides melaninogenicus, a small, gram-negative, anaerobic, nonsporulating, black pigment producing germ, should be regarded as a pathogen which is of importance in surgical infections. He has isolated it in combination with other aerobic and anaerobic bacteria from 45 surgical cases representing various infected wounds, lesions of the pleura and peritoneum as well as of the gastrointestinal, respiratory and genitourinary tracts. Others have cultivated it from the blood stream during puerperal infection. The author found it at necropsy in the heart's blood, the peritoneum and the visceral organs. Experimentally he has shown that it possesses a fibrinolysin which permits it to dissolve human blood fibrinogen, thus interfering with one of the essential defense mechanisms of the inflammatory process, local fixation of micro-organisms. In cultures it produces a putrid, foul odor and together with the anaerobic Streptococcus putrificus is responsible for the unpleasant odor of some types of pus. Strains of B. melaninogenicus were recovered from human lesions which, if inoculated within a few days after cultivation, were pathogenic for rabbits and mice. Intradermal injection produced in the former intense local inflammation, dermonecrosis and occasionally death. Previous damage of the tissue by a bacterial toxin enhances the dermonecrotic properties of the germs. The use of mucin as a menstruum for suspending the bacteria supplies them with a capsule, thus augmenting their pathogenicity and invasiveness. B. melaninogenicus, like Bacteroides funduliformis and certain other members of the genus bacteroides, may therefore be regarded as an "opportunist" which must find conditions suitable for invasion and multiplication.

United States Naval Med. Bulletin, Washington, D. C.

41:613-916 (May) 1943. **Partial Index**

War Wounds of Peripheral Nerves. W. M. Craig.—p. 613.
*Meningococcic Meningitis in San Diego Area During 1942: Recent Advances in Epidemiology and Treatment. C. D. Awe, R. W. Babione and J. N. DeLamater.—p. 625.
Treatment of Acute Proctologic Conditions Afloat. E. Granet.—p. 635.
Pneumonia: Review of 388 Cases at Philadelphia Naval Hospital. F. Fetter.—p. 653.
Effort Syndrome or Neurocirculatory Asthenia in Navy. A. M. Master. —p. 666.
Injuries of Head: Evaluation and Management. J. H. Siris.—p. 670.
Observations on Growth of Endameba Histolytica in Mediums Containing Sulfathiazole: Preliminary Report. W. W. Ayres.—p. 714.
Treatment of Cicatricial Entropion. W. L. Berkley.—p. 729.
*Treatment of Photophthalmia Following Exposure to Rays of Welding Arc. C. E. Benson.—p. 737.
Practical Points in Refraction. A. A. Knapp.—p. 750.
Simple Methods for Detection of Ocular Malingering. G. M. Bruce. —p. 755.
Hyperventilation and Hyperventilation Syndrome. R. W. Quinn. —p. 769.

Meningococcic Meningitis.—Awe and his associates report 50 cases of meningococcic meningitis which were treated at the Naval Hospital of San Diego during 1942. Two deaths occurred, one twenty minutes, the other four hours after admission. These are not chargeable to therapeutic failure, as 1 received no drugs, the other only one dose. The fact that 11 patients were comatose and 27 were stuporous, irrational or otherwise disturbed mentally indicates that the cases were not unusually mild. Fifteen patients received serum and sulfapyridine and 31 only sulfapyridine. No difference was noted in the patients treated with serum as compared with those not receiving it, save the high incidence of troublesome serum sickness. Therapeutic success depended on early and large doses of sulfapyridine, 12 Gm. intravenously in the first twenty-four hours. Adequate fluid intake, 3,000 cc. intravenously daily, prevented serious drug complications. All factors, excepting avitaminosis, which are accepted as fostering outbreaks of meningitis, were noted in 32 marine recruits: (1) rapid hardening of physically soft men; (2) mobilization of large numbers of susceptible men in crowded quarters; (3) prevalence of colds; (4) temporary overload of immunologic processes (inoculations against typhoid, tetanus and the like); (5) an underlying carrier state; (6) excessive heat and dust. With early diagnosis and adequate treatment the mortality and complications of meningococcic meningitis will approach zero. Sulfonamides alone, in large doses with ample fluid, provide adequate treatment. Serum is unnecessary and unpractical for military use. Sporadic cases are to be expected in men subjected to the conditions found in recruit training. Chemoprophylaxis is recommended in an epidemic of meningococcic meningitis, and alterations in the training program may be necessary.

Photophthalmia Due to Rays of Welding Arc.—Benson directs attention to the problem of exposure of the eyes to the radiant energy of the welding arc with the resultant photophthalmia, actinic ray ophthalmia or "flash." This type of eye injury is frequent in shipyards and in plants where welding plays a large part. It is not the welder who is the most frequent victim of his own arc but the workmen engaged in work near the welder. The welder protects himself with his hood. He may, however, receive an actinic injury from the arc of another welder near him or from his own "accidentally struck" arc while his own hood is raised. After exposure to the arc a latent period ensues which may vary from two to fifteen hours. The lesion then manifests itself with a sudden onset of intense photophobia, lacrimation and a burning sensation in the eyes. The most frequent complaint is that of a feeling of "sand in the eyes." The lesion is bilateral, although at times the symptoms will appear earlier in one eye than in the other; in the present series the majority of "one-eyed flashes" were found to be caused by foreign bodies. Moderate dilatation of the conjunctival vessels is present, but this congestion is usually limited to the area of the palpebral fissure. Prevention can be accomplished by protecting the eyes with shields, hoods and goggles. Seventy-three cases were treated with a 2 per cent butyn sulfate and a 1 per cent diothane hydrochloride; 447 cases were treated with a solution containing 0.25 per cent nupercaine hydrochloride and 0.5 per cent neosynephrine hydrochloride as the active principles. The nupercaine was used because of its relatively prolonged anesthetic action. Neosynephrine was added to overcome the vasodilatation and to attempt a partial neutralization of the contraction of the pupils accompanying many actinic ray lesions. The nupercaine-neosynephrine was dissolved in a zephiran 1:5,000 aqueous base to decrease the surface tension of the solution, for better penetration and to furnish an antiseptic medium. About 2,500 additional cases have been treated by the nupercaine-neosynephrine routine. The treatment has not appreciably decreased the duration of the reparative process. It gave considerable symptomatic relief and helped return men to their work with a minimum of lost time and with no apparent permanent injury.

Virginia Medical Monthly, Richmond

70:279-330 (June) 1943

Navy Doctor in War. L. Sheldon Jr.—p. 283.
Management of Pleural Effusion Associated with Pneumothorax. B. Cole and L. J. Buis.—p. 289.
Treatment of Lymphopathia Venereum. R. Buxton.—p. 291.
Multiple Saccular Aneurysms of Aorta with Roentgen and Necropsy Findings. F. B. Mandeville.—p. 293.
Treatment and Analysis of 350 Consecutive Cases of Acute Appendicitis. H. L. Skinner and R. D. Duncan.—p. 297.
Clinical Aspects in Treatment of Syphilis. E. E. Haddock.—p. 299.
Recent Trends and Current Attitudes in Orthopedics. D. T. Imrie. —p. 302.
Remarks on Treatment of Meningitis. C. P. Jones Jr.—p. 308.
Pharmacist Looks at Physician. K. L. Kaufman.—p. 311.
Recommendations for Venereal Disease Control Program in Industry: Report of National Advisory Committee on Control of Venereal Diseases in United States. O. L. Anderson.—p. 314.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

66:1-88 (March) 1943

Studies of Neuromuscular Disorders: Myogram, Blood Cholinesterase and Effect of Prostigmine in Myasthenia Gravis and Progressive Muscular Atrophy. G. Odom, C. K. Russel and D. McEachern.—p. 1.
*Subdural Empyema. C. S. Kubik and R. D. Adams.—p. 18.
*So-Called "Laryngeal Epilepsy." C. W. M. Whitty.—p. 43.
*Genetic and Familial Aspects of Dystrophia Myotonica. O. Maas and A. S. Paterson.—p. 55.

Subdural Empyema.—Kubik and Adams review 14 cases of subdural empyema. The sources of infection were paranasal sinusitis in 12 cases, otitis media in 1 case and bronchiectasis with metastatic infection in 1 case. The symptoms in the cases complicating sinusitis consisted of exacerbation of chronic sinusitis, orbital swelling, headache, rise in temperature, stiffness of the neck, drowsiness or stupor and focal neurologic signs. Hemiparesis or hemiplegia occurred in every case. Paralysis of contralateral deviation of the eyes nearly always developed. Aphasia was observed in most cases of left-sided empyema. Jacksonian seizures were fairly common. Spinal fluid pressure was nearly always increased, ranging from normal to the equivalent of 350 mm. of water. Cell counts generally ranged from 150 to 600 per cubic millimeter, with polymorphonuclear leukocytes predominating. The sugar content of the spinal fluid was normal. The total protein ranged from 49 to 186 mg. per hundred cubic centimeters. No organisms were found in smears or culture. Except for absence of sinus infection and orbital swelling, the clinical manifestations in the 2 other cases, secondary to otitis and to bronchiectasis, were similar to those complicating sinusitis. The course was rapidly progressive. In 12 cases death occurred six to twenty days after onset of headache, and two to five days after focal signs were first observed. In 2 cases recovery took place after drainage of the empyema. Infection of the subdural space took place by direct extension through the dura or as a result of thrombophlebitis involving the venous sinuses, usually the superior longitudinal. The subdural pus covered the greater part of the lateral surface of the hemisphere, the greatest amount being situated over the lateral surface of the frontal lobe. There was a localized subarachnoid exudate conforming in its distribution to that of the subdural exudate, but scarcely any generalized leptomeningitis. In the underlying cortical gray matter there was severe ischemic necrosis and in most cases thrombosis or thrombophlebitis involving the subarachnoid veins. Surgical treatment should consist in drainage through a lateral frontal craniotomy and not through the frontal sinus or a mastoidectomy wound. The operation is simple and quick and, if the results are negative, little or no harm is done, provided the brain is not explored.

So-Called Laryngeal Epilepsy.—Whitty reviews a condition originally described by Charcot as laryngeal vertigo. Theories on the etiology of the condition fall into two main groups, those which regard it as primarily neurologic and those which regard it as primarily cardiovascular. In the first group is Charcot's theory of reflex vertigo and the epileptic theory of origin, while in the second appear the theories of cerebral anoxemia, venous congestion and cardiac asystole. The condition occurs in middle aged men of plethoric type and is associated with a laryngitis or bronchitis. A previous personal or family history of epilepsy may occur but is not common. The presenting symptom is an attack of dizziness or loss of consciousness preceded by a tickling sensation in the larynx and a cough which may be slight or severe. Epileptiform movement may occur during the attack, but a more constant feature is a slight mental confusion afterward. About a fourth of the cases appear to recover or remit following local treatment of any abnormality which may be present in the upper respiratory tract. Four cases are reported in detail. It is suggested that the condition is primarily epileptic. The name laryngeal epilepsy would appear more suitable than that under which the condition is at present most widely known.

Dystrophia Myotonica.—Maas and Spencer Paterson base their study of the familial aspects of dystrophia myotonica on an analysis of 94 affected families. Dystrophia myotonica is essentially the same as myotonia congenita and paramyotonia. The disease is more frequent than is generally supposed. In the families of the 94 propositi, 261 individuals showed definite signs of the disease, while another 285 had suggestive symptoms. Although the disease is frequently noticed for the first time in the third and fourth decades of life the authors have observed it in persons aged 14, 12, 9, 8, 6, 5, 4 and 3. Although patients generally die by the age of 50, they have occasionally found one comparatively well beyond the ages of 60 and 70. In certain families in which for the most part symptoms were slight, members were often remarkably prolific. However, mental defect, and other symptoms affecting earning power, combined with atrophy of the testes caused a definite fall in the number of children in later generations. There was a high incidence of miscarriage and infantile mortality, which was probably due to the disease process and not merely to the low social status of the families affected. Twinning appears to be particularly frequent, and this may be related to a noxa affecting the germ plasm. Although patients are occasionally found of high social status, most families are low in the social scale. The disease is transmitted in a dominant manner; it is inherited from male and female with equal frequency. Consanguinity is probably not infrequent in early generations. There is evidence that in many families the disease comes on at an earlier age and in a more intense form in successive generations. It was also usual for younger members of a sibship to develop the disease at an earlier age than the older sibling and in a more severe form.

Medical Journal of Australia, Sydney

1:267-290 (March 27) 1943

*Investigation of Renal Function with New Nomographic Method for Determination of Urea Clearance. M. C. Davis.—p. 267.

1:291-306 (April 3) 1943

Physiology of Chronic Nephritis. J. M. Hayman.—p. 291.
Hippuric Acid Excretion Test in Pregnancy. L. Sloman.—p. 293.
Precipitation in Stored Human Serum: Preliminary Note on Factors Concerned. P. M. de Burgh and R. N. Lyons.—p. 298.

Nomographic Method for Determination of Urea Clearance.—Davis has correlated the urea clearance test with clinical and other observations in 54 cases involving 67 tests. By comparison with other tests and by follow-up investigation of clinical histories, a careful estimation of the test has been possible. The importance of giving urea by mouth to subject the kidney to load or stress is emphasized. The simple Van Slyke test, by omitting this factor, is of less value than the modified urea clearance which is described. All aspects of a case must be considered before final conclusions are reached. A simple nomographic chart is presented which will allow the clinician to determine from all available data the true clearance value. The chart has four scales. One scale marked V indicates the volume of urine in cubic centimeters excreted each minute. The scale marked U records urea concentration (grams of urea per hundred cubic centimeters). The B scale shows the blood urea level (milligrams of urea per hundred cubic centimeters of blood). The C scale indicates the blood urea clearance as a percentage of the normal value. To determine clearance (C) a straight line is placed through values U and B, which intersects a central unscaled line. Then a straight line is placed through this point and value of V. The point of intersection of this line with the C scale gives the value of C, that is, clearance. This nomograph chart eliminates all mathematical formulas. The author concludes that the urea clearance test is reliable and accurate and in many cases provides the only guide to renal damage. Because other means of biochemical assessment often prove misleading, older methods should be discarded. The urea clearance test should be employed in assessment of prognosis or of fitness for operation. The test appears to be of great value in chronic nephritis and prostatic enlargement, in which urea concentration and blood urea level may be misleading.

South African Medical Journal, Cape Town

17:51-66 (Feb. 27) 1943

Tiredness and Eyesight. H. de Villiers.—p. 55.
*Pneumonic Plague: Recovery in Proved Case. B. M. Clark and S. Goldberg.—p. 57.
Plasmocytosis of Bone Marrow Associated with Metastatic Carcinomatosis. E. Miller.—p. 61.

Recovery from Pneumonic Plague.—According to Clark and Goldberg the mortality of pneumonic plague may be considered as 100 per cent. The authors report an outbreak which, although the number of cases involved was small (11 in all), was potentially serious as it took place in a crowded location in the native part of a town in the northern Orange Free State. The measures taken to control the outbreak consisted in quarantine and the giving of live avirulent vaccine. Concentrated serum was given as a prophylactic measure to close contacts. Antirodent work was carried out in the area. The patient who recovered was an old woman who belonged to the same household in which 4 fatalities from pneumonic plague occurred. She had the same symptoms as the others. She had been given 1 cc. of live avirulent vaccine and 50 cc. of antiplague serum as a prophylactic measure five days before the onset of her illness. She was treated early with large doses of serum, 400 to 500 cc. intramuscularly and subcutaneously. She had remittent pyrexia for a period of a week and was acutely ill but finally recovered. Bacteriologic evidence of pneumonic plague was found in the sputum.

Semana Médica, Buenos Aires

50:357-412 (Feb. 18) 1943. **Partial Index**

Angina Pectoris of Thyroid Origin. P. Heredia.—p. 357.
Wounds of Heart in Civil Practice. L. M. Martiarena.—p. 367.
Etiology of Psoriasis: Clinical Observations. A. Bigatti.—p. 380.
*Twenty Years' Experience in Puerperal Eclampsia. A. J. Guiroy, R. Dubrovsky and N. O. Di Fonzo.—p. 394.

Treatment of Puerperal Eclampsia.—Guiroy and his associates review 233 cases of puerperal eclampsia observed in the course of twenty years. The maternal mortality was 6.43 per cent and the fetal mortality 9.43 per cent. When the dead and macerated fetuses whose death was caused by gestosis and other causes rather than by the eclampsia are included, the fetal mortality reaches 15 per cent. Cesarean section is losing ground as a therapeutic method in puerperal eclampsia. It is indicated only in exceptional cases. Prophylactic treatment during pregnancy by hygienic measures and a well chosen diet continue to be the essential factors in the reduction of the maternal and fetal mortalities from puerperal eclampsia. The outpatient departments of the maternity hospitals play an important part in this prophylaxis. At the maternity hospital with which the author is connected satisfactory results were obtained with Stroganoff's prophylactic method, which combines morphine, magnesium sulfate and venesection. Absolute isolation is enforced to keep away all excitement, necessary manipulations are carried out under mild anesthesia, the patient is kept warm, and hypnotics of low toxicity are administered.

Münchener medizinische Wochenschrift, Munich

89:299-322 (April 3) 1942. **Partial Index**

*The Clinical Picture of Typhus. G. Walther.—p. 299.
Index of Epidemic Typhus Infection. G. Seiffert.—p. 304.
Recurrence of Disease of Bile Ducts After Gallbladder Operation; Special Reference to Cholangitis. G. Leopold.—p. 306.
*Psittacosis Pneumonia. L. Stehr.—p. 311.
Treatment of Obesity from Biologic Point of View. R. Trumpp.—p. 313.
Treatment of Hidradenitis Suppurativa Axillaris. W. Schuchard.—p. 315.

The Clinical Picture of Typhus.—Frequently the onset is abrupt after a period of incubation of from twelve to fourteen days. There is a rise in temperature on the first day up to 102.2 F. and a severe headache. The temperature falls but not to normal on the second and third days and this is followed by a new and even higher rise for about eight days. The rash appears on the third to the fifth day. Brauer's eraser phenomenon (fine scales of the horny layer of the epidermis may be removed by rubbing with the finger) precedes the desquamation, which begins between the twelfth and the fifteenth day. Yellow pigmentation of soles and palms may be present. Disturbances of the central nervous system are important. The course of the disease depends on the behavior of the heart and circulation. These are indicated by the changes in the electrocardiograms. The spleen is enlarged during the first half of the febrile phase. Tracheitis and bronchitis are frequent. There is a mild leukocytosis. Decrease or absence of eosinophils corresponds with the degree of infection. Disturbances of chlorine and water metabolism are manifest by the degree of thirst. Abnormal breaking down of albumin results in increase in residual nitrogen. Occasional anomalies such as absence of the rash and of cerebral and circulatory disturbances may occur in an otherwise typical course. A strong active immunity for a long period follows a single attack. Favorable results were obtained with oral administration of diazotized prontosil (4 sulfonamide 2-4 diaminoazobenzol, 6 carbonic acid). Symptomatic treatment however, is recommended. Eradication of lice as hosts of Rickettsia prowazeki is decisive in the combat against an epidemic, although active and passive vaccination is of value.

Psittacosis Pneumonia.—Pneumonia with few symptoms and little sputum is the essential feature of psittacosis in man. The bronchi may be considered as the port of entrance for the infection and the disease may be transmitted by inhalation of infectious dust. Although bacteriologic diagnosis may fail, the x-ray film shows certain changes which together with an atypical clinical picture facilitates the diagnosis. Roentgenograms show single or multiple fluffy shadows of the type of central pneumonia or of an entire lobe. Since similar x-ray pictures may be seen in grippal pneumonia, the roentgenogram by itself is not sufficiently typical to make a diagnosis. The roentgenographic shadows are evanescent and there is an absence of inflammatory symptoms on the part of the pleura and the pericardium. The discrepancy between the meager or absent clinical findings and roentgenographic changes is characteristic. Psittacosis in man is probably a familial disease since several members of the same family may be affected at the same time or at short intervals.

Zentralblatt für Chirurgie, Leipzig

69:929-960 (June 6) 1942. **Partial Index**

Cystic Lymphangioma of Diaphragm. P. E. A. Nylander.—p. 929.
*Experiences in Neurosurgical Treatment of Megacolon. V. Rapant.—p. 934.
Perforated Gastric Ulcer of the Greater Curvature. E. Sipos.—p. 949.
Problem of Defects of Mesentery. T. Hornitzki.—p. 952.

Neurosurgical Treatment of Megacolon.—The cause of idiopathic megacolon is dystonia of the sympathetic nervous system, the mechanism of which is not understood. The clinical picture of idiopathic megacolon is not the same in children and in adults, although the pathogenesis and the anatomic changes are the same. Conservative treatment in childhood is not satisfactory. Conservative treatment, however, is indicated during the first year of life when surgical intervention is contraindicated. Neurosurgical treatment of unilateral inferior lumbar sympathectomy is, however, advisable even at this period of life if the conservative treatment fails. The bilateral resection of the dilated segment may be the method of choice, but it will fail in the presence of atonia combined with dilatation of the ampulla recti. Kümmel-Kirschner's invagination method is indicated in such cases. The Delor-Goinard-Merz method combines the advantages of unilateral resection with exteriorization of the colon and later anastomosis. The neurosurgical treatment, while the anatomic changes in the colon are not pronounced, is the logical conclusion to the concept that idiopathic megacolon is a manifestation of dystonia of the vegetative system in the sense of sympathetic hypertonia. Favorable results were obtained in 4 out of 5 cases in which neurosurgical treatment was practiced. It consisted in bilateral inferior lumbar sympathectomy combined with resection of the superior hypogastric plexus in the first and with additional resection of the inferior mesenteric plexus in the second case, of unilateral inferior lumbar sympathectomy in the third and fourth cases of two infants. It was demonstrated that the inferior lumbar sympathectomy will not replace the resection of the superior hypogastric plexus. The bilateral inferior lumbar sympathectomy alone will be sufficient only in early cases in which only the sigmoid flexure is involved. Both the neurosurgical and the radical method are justified in surgery of the megacolon.

Book Notices

Neurosurgery and Thoracic Surgery. Prepared and edited by the Subcommittees on Neurosurgery and Thoracic Surgery of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Neurosurgery. Prepared and edited by the Subcommittee on Neurosurgery. Howard C. Naffziger, Chairman. With contributions by Francis C. Grant, J. Grafton Love and John E. Scarff. Thoracic Surgery. Prepared and edited by the Subcommittee on Thoracic Surgery. Kvarts A. Graham, Chairman. Military Surgical Manuals. Volume VI. Cloth. Price, $2.50. Pp. 218, with 73 illustrations; 221-310, with 30 illustrations. Philadelphia & London: W. B. Saunders Company, 1943.

This is an important book on a subject that is well treated and most briefly and comprehensively presented. The student must remember in reading this book that we are dealing here almost exclusively with traumatic conditions of the central nervous system as well as of the peripheral nervous system. It cannot be too strongly emphasized that any one who masters the book as is outlined is not necessarily a neurologic surgeon, and surely this little volume does not intend to create that impression.

The prophylactic treatment, particularly in reference to immunization, should be forcefully impressed on any one who reads the book because it certainly is a step in the right direction. The use of the sulfonamide drugs cannot be too highly emphasized, because of the potentialities of making a twenty-four hour wound, or older one, possible for primary suture.

The treatment of gunshot and other injuries to the scalp, skull and brain, except for the factor mentioned, is the same as has been carried out for many years and nothing particularly new has been added. One thing that is emphasized is the advisability of transportation of these patients to a hospital where proper neurosurgical therapy can be instituted. Transportation by plane is emphasized and the dangers are noted.

The treatment of injuries to the spinal cord is comprehensive, although the reviewer does not agree in its entirety with the contents of the book. Traumatic spine conditions may be operated on irrespective of the Queckenstedt test. No one can determine clinically whether a cord is completely severed or whether there is a physiologic block.

The chapter on intervertebral disks in military service is no different than in civilian life. This is one of the most abused diagnoses in medicine, and unless a myelogram is made the diagnosis is always questionable.

Peripheral nerve injuries are handled quite well, nothing new having been added since World War I. Unfortunately, some of the newer methods in the treatment of peripheral nerve injuries are not incorporated in the text. True, these have not been proved clinically, but an addendum may be made after proof of the clinical value of the new type of treatment is established.

The section dealing with infections of the scalp, skull and meninges is comprehensive. Certainly, after reading this section physicians should be conscious of the fact that infections of the central nervous system require excellent judgment and proper timing relative to the institution of therapy. The charts for examination and recording purposes are ideal and should be studied carefully and utilized in their entirety.

This book, therefore, is a complete treatise on injuries to the central nervous system and peripheral nerves. To all surgeons who will be confronted with this type of work, whether in military or in civilian life, this book is highly recommended.

Textbook of Periodontia (Oral Medicine). By Samuel Charles Miller, D.D.S., F.A.C.D., Associate Professor of Periodontia in Charge of Periodontia Department, New York University College of Dentistry, New York. An introduction by John Oppie McCall, A.B., D.D.S., F.A.A.P., Director, Murry and Leonie Guggenheim Dental Clinic, New York. Second edition. Fabrikoid. Price, $9.50. Pp. 733, with illustrations. Philadelphia: Blakiston Company, 1943.

It is significant of the progress of periodontia as a science that after only four years the author felt impelled to revise his former textbook to include valuable new findings and improvements in technics. This volume is comprehensive not only as to all phases of dental health but as to its relation to physical health as well. The increasing life span has brought gerodontia (dentistry for the aged) to the fore as an obligation of the practicing dentist. The highest goal in oral health service may be achieved by the dentist only through sound knowledge of disease processes and efficient methods for their treatment.

The conquest of periodontal disease is an accomplished fact, where heretofore pyorrhea was considered incurable. Prevention of the disease is of primary importance. If not too far advanced, it may be cured. This book gives an adequate presentation of the principles of treatment from therapeutic and surgical points of view.

Every chapter treats its subject in minute detail, with illustrations and chemical formulas. Diagnosis and treatment cover physiologic as well as dental symptoms and diseases. Laboratory procedure includes metabolism and blood chemistry, with colored illustrations of normal development of blood cells contrasted with pathologic shifts; also tests for vitamin C content of the blood plasma, urinalysis and skin tests for allergic reactions. All conditions of periodontal pockets are illustrated with the proper instruments and their use as the case requires.

An exceptional chapter is the one on traumatic occlusion, its detection and correction. So many dental diseases have been traced to traumatic occlusion that all branches and specialties of dentistry are readily recognizing the value of occlusal coordination. A comparative study of x-ray films over a period of years of teeth having no occlusal adjustment shows clearly the condensation of bone to resist strain. The alveolar support cannot resist strain indefinitely, so teeth eventually loosen and require extraction, even though they are vital and examination of the socket reveals diseased bone. Because of its very nature, the degrees of traumatic occlusion are difficult to describe, as the distinctions are so fine as to be comparable to a minute degree of shading in color. Adjustment of occlusion may so alter the movements of the mandible as to enhance the symmetrical evolution of the face.

Habits may be an etiologic factor in periodontal disease and should be carefully noted and corrected. Dysfunction from nonocclusion may be a contributing cause also. The establishment of healthy circulation by passive massage is of paramount importance in such cases, as the increased blood supply from massage raises the resistance of the tissue to disease. Orthodontia and restorative procedures may be required. In the case of migrating teeth, first the cause must be removed, then they must be restored to their proper functional position.

Necrotic gingivitis is "a painful inflammation of the gingival tissues characterized by a type of pseudomembranous formation (made up of bacteria and necrotic tissue) and superficial ulceration." A differential diagnosis should be made to give proper treatment, as various diseases have been traced to the associated organisms. Experiments have been made with sulfonamide compounds, and results with their local application appear promising. Other drugs and their application are described at length. Diet has a direct relationship to dental and periodontal disease. "Leading nutritionists use the oral changes for determining deficiencies of vitamins as well as the efficiency of vitamin therapy. The mouth is the zone of greatest susceptibility and its structures are most accessible for observation, making it the ideal place to find early and advanced lesions, not only of nutritional deficiencies, but of many systemic diseases before they become apparent through other symptoms."

The endocrine system is presented in its relation to dental health as well as to systemic disturbances. In hypothyroidism dentition is retarded, and teeth erupt in the wrong sequence and are poorly calcified. In hyperpituitarism teeth are found to erupt prematurely and to be too widely spaced. "Metabolic disorders are not always manifestations of pathologic conditions, since they may also represent evidences of self healing." Periodontitis and diabetes are interrelated. Lintz assumes that focal infection is frequently the cause of diabetes. Sugar percentage has shown lower value after periodontic treatment. "The medical practitioner should work in close cooperation with the dentist in the treatment of systemic diseases related to periodontal disturbances."

Education of the public to the value and necessity of periodontal treatment will require patience, as the idea that pyorrhea is an incurable disease has been too firmly established. Miracles cannot be performed if the disease has gone so far that the tissue around the tooth has been nearly destroyed, leaving the member without support of any kind, in a mass of flabby tissue.

But when the cause is discovered in time and the proper remedy is applied, the tightening of the teeth borders on the miraculous. The method of presenting the benefits of periodontal treatment necessarily varies, according to individual eccentricities. Slides, models, photographs and verbal and printed comments find their place in this missionary work. In periodontia the patient must be kept constantly aware and constantly interested in his part of home care, tooth brushing technic and alterations in diet to obtain lasting results. The dentist then should clearly define his reasons for reconstructing bridges, if necessary, and replacing missing teeth to establish a balanced occlusion.

Proteins, Amino Acids and Peptides as Ions and Dipolar Ions. By Edwin J. Cohn and John T. Edsall. Including Chapters by John G. Kirkwood, Hans Mueller, J. L. Oncley and George Scatchard. American Chemical Society Monograph Series. Cloth. Price, $13.50. Pp. 686, with illustrations. New York: Reinhold Publishing Corporation, 1943.

This book is not a systematic treatise on the chemistry of amino acids, peptides and proteins or even on the physical chemistry of these important substances. It deals with them from the limited point of view of the number and distribution of the electrical charges they bear and the "implications of their charged structure for their physical properties and their physicochemical interaction with other molecules." The field covered by the monograph was opened by the studies of Debye and Hückel on the interionic forces in electrolyte solutions and by the work of Bjerrum, who demonstrated that aliphatic amino acids, even in the isoelectric state, bear positively and negatively charged ionic groups, by virtue of which they react as zwitterionen, or dipolar ions. By applying these fundamental concepts to theoretical and experimental studies of amino acids, peptides and proteins, the authors and their associates have paved the way to new and fruitful methods of protein investigation. This book is therefore the result of years of discussion and collaboration by a number of leading workers in this field. It is divided into two parts: part 1 on amino acids and peptides; part 2 on the size, shape and electric charge of protein molecules. Individual chapters in the book have been contributed in general by individual authors. The nature of the subject is such that this is not an easy book to read. It is, however, a book which will repay the serious student of the subject by giving him a deeper understanding of the structure and reactions of protein molecules and of their importance in living cells. The more casual reader will find it invaluable as a work of reference in this rapidly developing field.

Physiological Regulations. By Edward F. Adolph, Associate Professor of Physiology in the University of Rochester, Rochester, New York. Cloth. Price, $7.50. Pp. 502, with 186 illustrations. Lancaster, Pennsylvania: Jaques Cattell Press, 1943.

"Animals preserve their constitutions and activities like themselves, within the limits of variation that characterize the normal, either by preventing disturbances from occurring, or by compensating for each actual and incipient departure from normal" (p. 479). Summarized with that statement, this monograph represents a quantitative study of the restoration of physiologic equilibrium after its disturbance. Drawing freely on published work from his own and other laboratories, while presenting also appropriate hitherto unpublished data, the author mathematically characterizes recovery from increments or decrements ("loads") of components such as water or heat. Relationships between variables are portrayed graphically, using, in many instances, quotients and coefficients in order to increase the number of variables represented on a single pair of axes. Chapters and sections are provided with valuable summaries, and the last chapter contains recapitulations that may be read with profit before one approaches the more specific and detailed presentations of experimental data.

On casual inspection the title of the book appears to be misleading because of the many pages of text devoted solely to the subject of water exchange. More careful examination reveals, however, that a quantitative description of water exchange is used as an introduction to the study of a variety of types of regulation, including heat, "total substance," dextrose, carbon dioxide, oxygen and lactic acid. Although the book as a whole is written in an impersonal first person, here and there one encounters passages which intimately disclose the likes and dislikes, favors and prejudices of the author. Apparently anticipating criticism of his having selected a descriptive method of research, the author includes also a defense of that method in which he justifies his use of quantitative description.

Endocrinologists and neurophysiologists may not agree with the concept that regulation is "a generalized statement of uniformities of relations among [phenomena]" (p. 451). Little attention is given to the role of specialized cells in the maintenance of balances. For example there is no comprehensive discussion of the activity of the supraopticohypophysial system in water equilibration or of the function of the hypothalamus in the regulation of body temperature. But the study does not pretend to exhaust the possible interrelations of physiologic variables. Since the experimental method here utilized can be applied not only to description of the behavior of the whole organism but also to study of its parts, there remains an opportunity for a similar investigation of the function of "regulatory mechanisms" composed of specialized cells of the nervous system or the endocrine glands.

Mind, Medicine, and Man. By Gregory Zilboorg, M.D. With a foreword by Arthur H. Ruggles, M.D. Cloth. Price, $3.50. Pp. 344. New York: Harcourt, Brace and Company, 1943.

The author is engaged in private practice in psychiatry and psychoanalysis in New York. With George W. Henry he has written a history of medical psychology which has been well received. The chapter headings indicate the nature as well as the wealth of the material in the present book: on certain misconceptions; instincts and their manifestations; normal neuroses and personality; certain aspects of mental illness; theories and practice; civilization and social sciences; varieties of human aggression; crime and judgment; psyche, soul and religion. The discussions are able, scholarly and comprehensive, leading the way to better understanding of psychiatric problems. In his foreword Dr. Ruggles writes "How fortunate it is that in these days of disordered thinking, feeling and acting we have a pathfinder who so ably helps us in correcting psychological misconceptions." The book has a special appeal to those who are interested in the advances of knowledge of the human mind—churchmen, lawyers, scientists, physicians.

Brucellosis in Man and Animals. By I. Forest Huddleson, D.V.M., M.S., Ph.D., Research Professor in Bacteriology, Michigan State College, East Lansing. Contributing Authors: A. V. Hardy, M.S., M.D., Dr.P.H., Associate Professor of Epidemiology, DeLamar Institute of Public Health, Columbia University Medical School, New York. J. E. Debono, M.D., M.R.C.P., Professor of Pharmacology and Therapeutics, Royal University of Malta, and Ward Giltner, D.V.M., M.S., Dr.P.H., Dean of Veterinary Division and Professor of Bacteriology, Michigan State College, East Lansing. Second edition. Cloth. Price, $3.50. Pp. 379, with 43 illustrations. New York: Commonwealth Fund, 1943.

Brucellosis has assumed a place in medicine of worldwide importance. It is only proper, therefore, that in the revised edition of this book Dr. Huddleson should supplement his extensive observations on the disease in animals with the experience of physicians on the disease in human beings both in this country and in Europe. Dr. J. E. Debono of the Royal University of Malta presents a discussion compiled on the large number of cases that have occurred on that island, while Dr. A. V. Hardy surveys the ramifications of the disease as found in the United States. The clinician, the pathologist and the epidemiologist will find detailed and specific recommendations in the material. Numerous case reports appear in the appendix that should be of service to the physician. The control of the sources of brucellosis infection is discussed by Dr. Ward Giltner with emphasis on the area eradication program for cattle. Sheep, goats and hogs present a lesser problem in the United States.

Patología funcional de la glándula mamaria: Las mastopatías hormonales. Por Antonio Egües. Paper. Pp. 190, with 47 illustrations. Buenos Aires, 1942.

This is a complete review of the long debated topic of precancerous changes of the mammary gland and on the Reclus or Schimmelbusch's disease, the author contributing numerous personal cases. It is concluded that a precancerous condition can be feared only when the evolution of a cystic mammary tissue is toward papillomatous formation and not toward senile atrophy. The study is purely clinical, no mention being made of the important contributions from workers on the same problem in rabbits and mice.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

FLAT FEET, SPASM AND MUSCULAR ATROPHY

To the Editor:—A boy aged 3 has had flat feet since birth and walks with an impaired gait (dragging the right leg much like a hemiplegic). He has an atrophy of the right leg, which measures about an inch smaller than the opposite one in all dimensions. There is no shortening. Can flat feet cause atrophy of either extremity and, if so, how?

C. H. Whiting, M.D., New York.

ANSWER.—This is an interesting question. First, to answer the question as to whether flat feet can cause atrophy of either extremity: yes, it can. Flat feet can occur with atrophy and may be associated with muscle spasm either in only one foot or in both, since the spasm is a physiologic reaction to prolonged strain. A muscle spasm of this type would give a hemiplegic-like drag of the leg. The probability is that the boy has flat feet with a functional decompensation, meaning that he has flat feet but the feet are not strong enough to do normal work. Therefore spasm may develop and he may have a dragging foot like a hemiplegic.

Treatment should consist in correction of the flat feet by bringing the heel into varus and correction of the supination of the anterior part of the foot, that is, bringing the head of the first metatarsal bone plantarward. In this way the arches can be reestablished. By holding this position and using the feet in normal exercise such as normal walking, it is possible ultimately to change the position of the feet.

SEVERE LANCINATING PAINS

To the Editor:—A man aged 50 has been suffering from intermittent attacks of idiopathic lancinating pain for twenty years. The pains are sudden or gradual in onset, localized anywhere on the body at different times, last for variable periods of time from a few minutes to hours, and may come in groups of pains for a few hours to a few days. The patient has had syphilis and was treated for it repeatedly but irregularly. He has just completed a course of antisyphilitic treatment and his Wassermann reaction is negative. He had the pains before and after this treatment and there has been no noticeable change from the treatment. Visits by literally at least two dozen doctors in the United States and in Puerto Rico have failed to relieve him. All other studies have been normal, including blood sugar, nonprotein nitrogen, uric acid, basal metabolic rate, uricolysis, calcium, phosphorus, spinal fluid, neurologic studies and stool examination. There is no history of alcoholism or heavy metal poisoning or gastrointestinal. His picture does not fit in with any diagnosis suggested by neuritis in Barton and Yetter's Symptom Diagnosis. There is no muscle weakness or any cutaneous evidence of a pathologic condition at any time. It is not affected by weather. The nearest I could come to a diagnosis was idiopathic neuritis, and since no other treatment, which had consisted of salicylates, calcifacians, vitamins of every nature, low protein diet, analgesics and arsenicals, had helped him, I tried a dose of intramuscular pitressin on the theory that herpes zoster was sometimes helped by pituitary extracts and that even if he didn't have herpes it might be a variation of it. Miraculously, his pains disappeared for a month, which was the longest time they had ever gone. Then the pains returned the same as ever. Another dose of pitressin caused a good bowel movement immediately, disappearance of the pains for ten minutes, recurrence for twelve hours and then disappearance for two weeks, which is the present time and the pains have not returned yet. Please help me relieve this perennial sufferer.

M.D., Puerto Rico.

ANSWER.—The description given of the patient's "pains" is quite typical of the lightning pains of tabes dorsalis, but patients with such involvement usually show some objective evidence of syphilitic involvement of the central nervous system such as pupillary changes, decrease or increase in deep reflexes, or sensory changes.

In about 15 per cent of the tabetic in whom the spinal fluid has become negative the lightning pains will persist. In many of these patients the "arrest" of the disease may occur spontaneously, without the benefit of antisyphilitic therapy. Neither does treatment with arsenic, bismuth, mercury or iodides offer these individuals relief from the pain after the spinal fluid has become negative. Fever therapy is likewise disappointing, but an occasional patient obtains relief from the use of thiamine hydrochloride in large doses such as 100 mg. by hypodermic once a day for thirty or more injections. Exposure to cold, barometric changes, fatigue and nervous exhaustion, excess of protein or sugar in the diet, focal infections and infected urinary bladders are some of the factors that these patients have reported as increasing their pain.

It is difficult to prevent such patients who derive no benefit from the medications mentioned or similar drugs from becoming morphine habitués. Neither is it possible to assure them that time will ameliorate their pain, because in the majority the pains persist indefinitely.

VALUE OF URINARY ALBUMIN AND CASTS IN DIAGNOSIS OF NEPHRITIS

To the Editor:—I am clinical pathologist for an army induction team. We are having difficulty in knowing when to reject a man with albuminuria. The U. S. Army defines nephritis as "persistent albuminuria, with or without casts." The Army routine is this: Whenever a man shows albumin (regardless of microscopic findings), urine is immediately repeated, even five or six times in one day! If a urine becomes normal, it is called a "transient" albuminuria and the man is accepted. I myself feel that if one sample shows casts there is renal disease. I also feel that even with nephritis not every sample will be abnormal. If urine persistently shows albumin throughout one day, the inductee is held over and reexamined the following day. If several samples still show albumin, the same thing is done on the third day and sometimes even on the fourth, but as soon as an albumin free urine appears, he is accepted. Do you think albumin should be called "transient" under these conditions? Do you think we would be justified in postponing examination for an interval, say of one month, after even one albuminuria, even without casts?

M.D., New York.

ANSWER.—In answer to the first question, it is just as much an error to assume that the kidneys are normal because one urine sample out of five is negative for protein as to assume that there is kidney disease because one urine sample out of five is positive for protein. Several factors determine whether the test for proteinuria is positive or negative—sensitivity of the test, the amount of electrolytes in the urine, the reaction, and especially the dilution or concentration of the particular sample.

It is not entirely correct to assume renal disease because of the presence of casts in one sample, unless one takes into account the number and nature of the casts. A few hyaline casts may have no significance, whereas one red cell, epithelial cast or fatty cast may mean serious renal disease. The effects of exercise, exposure to cold, posture, and acid-forming salts must be considered in interpreting the finding of a few casts.

It is quite true that even in nephritis not every sample of urine will be abnormal if the specimens are obtained under ordinary conditions. However, it is rare to fail to find albumin, casts or excessive red cells and white cells in a concentrated acid urine obtained as a result of deliberate dehydration of the patient. No diagnosis of the presence or absence of nephritis should be made without the examination of such a urine specimen.

In the case of the inductee who is held over for several days until he can produce a urine sample free from albumin, the underlying assumption seems to be that the original positive tests were due to extraneous or extrarenal factors. This is a risky assumption unless a more thorough investigation of the cause of the original albuminuria is undertaken. Postponing the examination for a given interval would not clarify this situation because the same condition that produced "transient" albuminuria on the first examination may do so again. The proper procedure is to obtain as concentrated a urine as possible by keeping the subject on a dry diet for twelve to twenty-four hours, and examining this urine for specific gravity, protein and sediment.

If a concentrated and acid urine sample cannot be obtained, the inductee should be held over until such is produced or until other studies, such as blood chemistry and intravenous pyelography, furnish sufficient normal or abnormal findings to settle the question of renal disease.

IMMUNIZATION AGAINST TETANUS

To the Editor:—Can you tell me whether or not there have been any fatalities in the United States Army from immunization against tetanus? I write this because some army officer (not medical) has been telling patients of mine that 600 soldiers have died from these injections and I am anxious to refute this type of rumor immediately and authoritatively.

Dan Tucker Miller, M.D., St. Louis.

ANSWER.—It is apparent that some one has been grossly misinformed concerning reactions and fatalities from the administration of tetanus toxoid. True, in the early part of the tetanus immunization program some reactions of sensitivity to the toxoid were experienced. It was learned soon that the great majority of these reactions were resulting from sensitivity to certain peptone components of the toxoids in use at that time. These peptones have not been used in making tetanus toxoid for use by the Army since the late summer of 1941. Since that time, several million doses of tetanus toxoid have been

administered and the reports of reactions of sensitivity received have been so few as to be practically negligible.

This subject was covered in some detail in an article published by one of the officers in the Preventive Medicine Division of the Office of the Surgeon General in the *American Journal of Public Health*, January 1943. The title of this article is "Tetanus Toxoid, Its Use in the United States Army." An estimate was given in that report of the frequency of reactions of sensitivity, and this frequency was considered to be somewhat less than 1 in 10,000 injections. While exact figures are not available, the incidence of these reactions is in all likelihood considerably less than 1 in 50,000 injections.

There is no truth in the allegation that 600 soldiers have died from injections of immunizations against tetanus. The fact is that the occasional reactions that do occur are for the most part extremely mild and are characterized by nothing more alarming than a generalized urticaria.

PSEUDOANGINA AND CONSTIPATION AS SYMPTOMS OF PROBABLE NEUROSIS

To the Editor:—For the past two years I have been treating a white woman aged 41. She has a history that started nine years ago when she fell in the street while walking. She fell on her abdomen with great force. A few weeks after this, while she was walking with her husband, he was suddenly seized with a fatal coronary occlusion. Soon after this the patient began complaining of precordial pains. The attending physician felt that this was nervous in origin and prescribed sedatives. Two months after her original fall she began complaining of epigastric pain, severe pain immediately after every bowel movement and pain in the precordium. This syndrome has defied diagnosis on an organic basis. The patient suffers severely from constipation and despite every known method of therapy she cannot move her bowels oftener than once every four to six days and only then with a saline cathartic. In the past three years she has lost about 10 pounds (4.5 Kg.), and this has been the most aggravating part of her illness because now she is convinced that she is severely ill. I might add that she was married again about one year ago to a kind and thoughtful man, but he is impotent in that he cannot maintain an erection and therefore has never had intercourse. The patient is neat, extremely pretty and of fine character. The family history is negative. She weighs 127 pounds (57.6 Kg.) nude. There is not a single positive clinical finding, aside from a midline abdominal scar, the result of an appendectomy. She has had a thorough workup, including an electrocardiogram, an x-ray examination of the chest, gastrointestinal and gallbladder series, complete blood count, blood sugar and urea nitrogen, urinalysis, stool culture and study for blood, special x-ray studies for possible diaphragmatic hernia, psychiatric examination, Wassermann test and a basal metabolic test. All these have been found normal. The psychiatrist believes that she has neurasthenia. I have talked with the patient for hours and despite everything she still has her pains and her constipation. Can you help me?

M.D., New York.

ANSWER.—Pseudoangina is a common disease of nervous persons, and especially of persons who have watched a loved relative dying of heart disease. This woman had enough of a psychic shock to produce a neurosis, and a common symptom of neurosis is pain.

Pain right after defecation in a nervous, hypersensitive woman is practically always of functional origin. It is an exaggeration of the distress and weakness some persons feel after a large diarrheic bowel movement. Such patients generally do best if permitted to stay constipated. Some take an enema once every four or five days. A half hour before taking the enema, they may take a dose of bromide to dull the distress that will follow the bowel movement.

Often, if sufficiently reassured, these patients will endure the pain without much more complaint. The husband's impotence may well be a factor in keeping up the distress. If this is true, the woman must be told to expect no improvement until she makes up her mind definitely either to stay in her bed and acquiesce to the situation or else to get out and ask for an annulment.

COARCTATION OF AORTA

To the Editor:—I should appreciate knowing something of the history of coarctation of the aorta. Who first described the condition and when? When the clinical and roentgenologic findings are observed in an adult with a history of no previous symptoms or signs, can this be construed as an acquired form of stenosis of the aorta rather than a congenital anomaly?

M.D., South Dakota.

ANSWER.—Coarctation of the aorta has been well known for more than a hundred years. Early cases were reported by Paris in 1791, Sir Astley Cooper in 1818, Otto in 1824 and Laënnec in 1826. As a matter of fact the case of greatest longevity (92 years) on record was reported as long ago as 1828 by A. Reynaud. The collateral circulation in coarctation of the aorta was well described by Meckel in 1827 and by Jordan in 1830. Bonnet in 1903 divided coarctation into the two types (1) infantile, which is the serious short lived type, and (2) adult, which is the ordinary clinical type, which can be usually readily diagnosed in childhood and middle age.

The clinical and roentgenologic findings in coarctation of the aorta discovered in an adult with a history of no previous symptoms or signs are to be construed as evidence that coarctation of the aorta developing at birth had been present all along but previously missed. So far as is known, it is not acquired later on in childhood or adult life. It is not rare for these cases to be overlooked for many years, and this fact is one of the reasons why it should be thought of and looked for in any young person with unexplained hypertension.

CHRONIC TRACHEAL AND BRONCHIAL IRRITATION

To the Editor:—Patients with chronic hemolytic streptococcus bronchitis with cough and expectoration constitute my problem. All studies, including the tuberculin skin test, x-ray and bronchoscopy in some, have been negative except persistent cultures of beta hemolytic streptococci. Various remedies have been tried, including sulfonamide drugs, without any apparent benefit. Is there any specific therapy of value in these cases aside from the general upbuilding of the patient? Stock and autogenous vaccines have apparently been without benefit.

M.D., New York.

ANSWER.—The persistent hemolytic streptococci in such cases may or may not be the actual cause of the condition. These bacteria more often cause acute rather than chronic infections. Unless they are constantly present in great predominance over other varieties, it is probable that they are saprophytes in the cases referred to. If they are, it is not surprising that the sulfonamide compounds had no effect in treatment. There is, of course, no logical basis for the use of specific vaccine therapy of any kind. However, beneficial effects sometimes follow the nonspecific reactions which may be provoked by vaccines. There is therefore no specific therapy available at present to recommend for these patients. The questioner is probably correct in suggesting general upbuilding of the patient. Perhaps a change in climate may be helpful. Inquiry should also be made into the amount of smoking or talking the patient does. Patients often cough unnecessarily hard or too frequently, which may in itself aggravate and perpetuate laryngotracheobronchial irritation. Inhalations of plain or slightly medicated steam, or spraying a 0.5 per cent solution of mono-p-chlorphenol in liquid petrolatum deeply into the trachea once or twice daily for a short time often alleviate cough.

MALARIA IN ALABAMA

To the Editor:—How common is malaria in southern Alabama? What are the chances of one's contracting malaria in moving from the North to a gulf town in Alabama?

M.D., Florida.

ANSWER.—Malaria in southern Alabama is endemic, and among the more susceptible groups of individuals it is quite common to find typical and even virulent cases.

By far the greater number of cases, however, are chronic. The symptoms are atypical (afebrile generally) and as a rule parasites are not demonstrable in the blood and, if demonstrated, are scanty in number and low in virulence.

The chances of contracting the disease by unacclimated persons would be great. This applies particularly to the coastal regions and river valleys and to those who fail to take reasonable precautions by screening after nightfall.

SMALLPOX REVACCINATION AFTER POSTVACCINAL ENCEPHALITIS

To the Editor:—At the age of 7 a patient of mine suffered a postvaccinal encephalitis and was desperately ill for several days. She recovered completely, has done well in school and college and has a promising personality. She now wishes to join the Waves and consulted me to ask if there was any reason why she should not be revaccinated, which is, of course, required in the service. I have been unable to find any reference to this in the medical literature. Can you tell whether there is any danger entailed in revaccinating the patient, who is now 20 years old?

Warren Ripley, M.D., Montclair, N. J.

ANSWER.—References dealing specifically with this question have not been found. There are, however, a number of articles which quite clearly indicate that the risk of revaccination to a young woman who suffered postvaccinal encephalitis many years ago would be so slight as to be insignificant. Gordon and Rhea (Postvaccinal Encephalitis, *Am. J. M. Sc.* **184**:104 [July] 1932) say that "postvaccinal encephalitis is essentially a disease following primary vaccination of patients between 6 and 11 years of age." Scott (Postvaccinal Encephalitis in Infancy, *Brit. J. Child. Dis.* **27**:245 [Oct.-Dec.] 1930) says "Immunity or even partial immunity to vaccination appears to carry with it an immunity to postvaccinal encephalitis. No case of encephalitis has occurred in a negative take, and after revaccination the condition is extremely rare."

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